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ORIGINAL ARTICLES

THE RATIONALE OF HYDROTHERAPY*

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It may seem out of place to introduce the subject of hydrotherapeutics into a program which, in its make-up, deals more particularly with utilitarian, economic, efficient and hygienic problems of water-supply. But when you consider that the success of hydrotherapy primarily depends on the quality and abundance of the water-supply, essential in the installation and operation of hydrotherapeutic apparatus, we find that after all it is a practical problem, which in its rationale concerns the engineer, the water superintendent, the hygienist and the physician. It is my purpose, therefore, to briefly outline to you the principles on which hydrotherapy is founded, consider the technic of and indications for its use.

The importance and responsibility of the public service department dealing with water-supply is great. It must insure a constant, abundant and potable water-supply. It safeguards the lives of the people dependent on public service supply, and must therefore insure the supply against contamination. These are problems in public hygiene and efficiency in supervision. Scientific efficiency must be the fundamental consideration in securing a water-supply for hydrotherapeutic use, the quality of which is unquestioned and abundance of which will permit its use in unlimited quantity in order to insure results in the application of water in the treatment of disease.

Hydrotherapy, as defined by Stedman (*Medical Dictionary*), is the "treatment of disease by means of water applied in various ways; the scientific use of water in therapeutics, as distinguished from hydropathy or its empirical application."

*Read before the Illinois Water Supply Association, Urbana, Illinois, March 11, 1913.

Baruch[1] says: "Hydrotherapy includes the application of water in any form from the solid and fluid to vapor; from ice to steam, internally, externally."

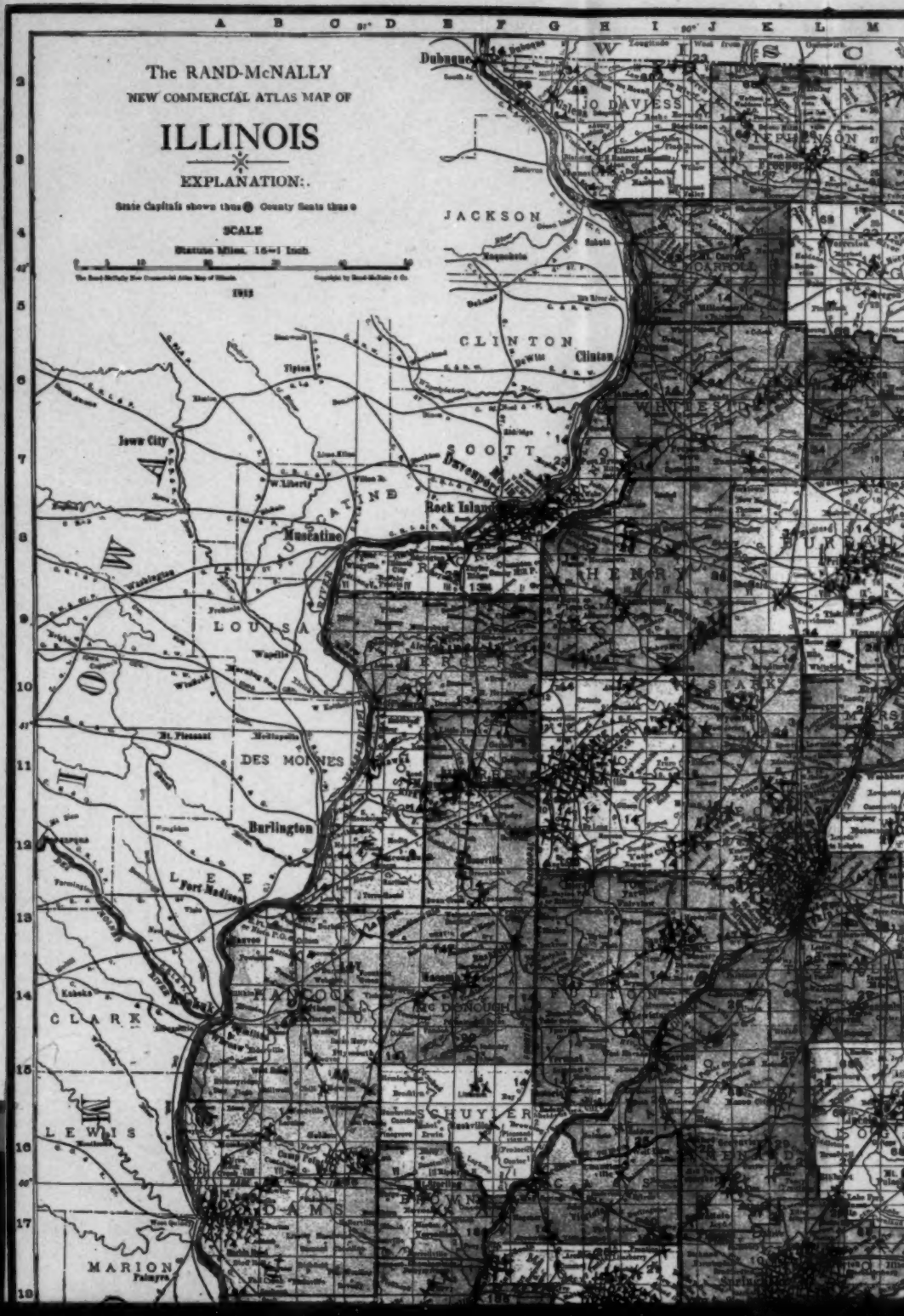
Hydrotherapy is one of the oldest therapeutic measures, and "no remedial measure," in fact, "can compare with it in antiquity." But like many of our ways, means and methods of therapeutics, their scientific application was not fully established or understood until the advent of the scientific period of the last half century, when theoretical discussion and empirical observations gave way to research, experimentation and exact observation. The science of therapeutics has been evolved in the past thirty years, emerging from the semi-primitive or empirical methods to the more positive and rational basis, which permits disentanglement from the formulae of so-called schools of medicine and elaborated from the precise facts of physiology, chemistry, bacteriology, pathology and physics, a homogeneous science of medicine which knows no school.

Scientific therapeutics is not a specialized science, but it is founded on scientific facts and in no department of therapeutics have scientific facts been more carefully considered than in hydrotherapy, but alas! in their application empiricism still prevails in the hands of the average practitioner. This is due to the fact that the weakness of all therapeutics has been exploited by pretenders and commercial interests. Hydrotherapy has not infrequently fallen into such hands, but this is no reason why we should distrust its remedial virtues or overlook its future possibilities, even under conditions where the water-supply in quantity or quality may not be all that is to be desired.

With the modern methods of treatment of waters, especially in making them hygienic and freeing them from chemical ingredients which affect not only the patient, but the apparatus as well, we believe it is possible to use hydrotherapeutic apparatus most anywhere, both in hospital and private practice. The expense of installation and up-keep are negligible, however, if the source of supply is adequate and the waters usable.

Just here let me suggest there is a difference in the use of waters for hydrotherapeutic purposes and for bathing as in the use of mineral baths. The latter comes under the term balneology and is applicable to use of baths where the mineral content of the waters is the factor in therapeutics. In hydrotherapy we use the water physically — hot or cold, under pressure or without pressure, as vapor or ice, etc. — the remedial values resulting from the reactions of the body to water thus applied. Baruch says: "The heat or cold conveyed by the peripheral cutaneous nerves to the central nervous system and thence reflected through the motor tracts is the really effective element in the mineral bath." "The latter are aided by only such ingredients as stimulate the cutaneous nerves, e. g., strong saline or carbonic gas constituents." Few indeed are the mineral ingredients which affect the skin or are absorbed through the skin. Physiological experimentation has confirmed this statement and scientific facts have

1. Baruch, Hydrotherapy, Wm. Wood & Co., 1908.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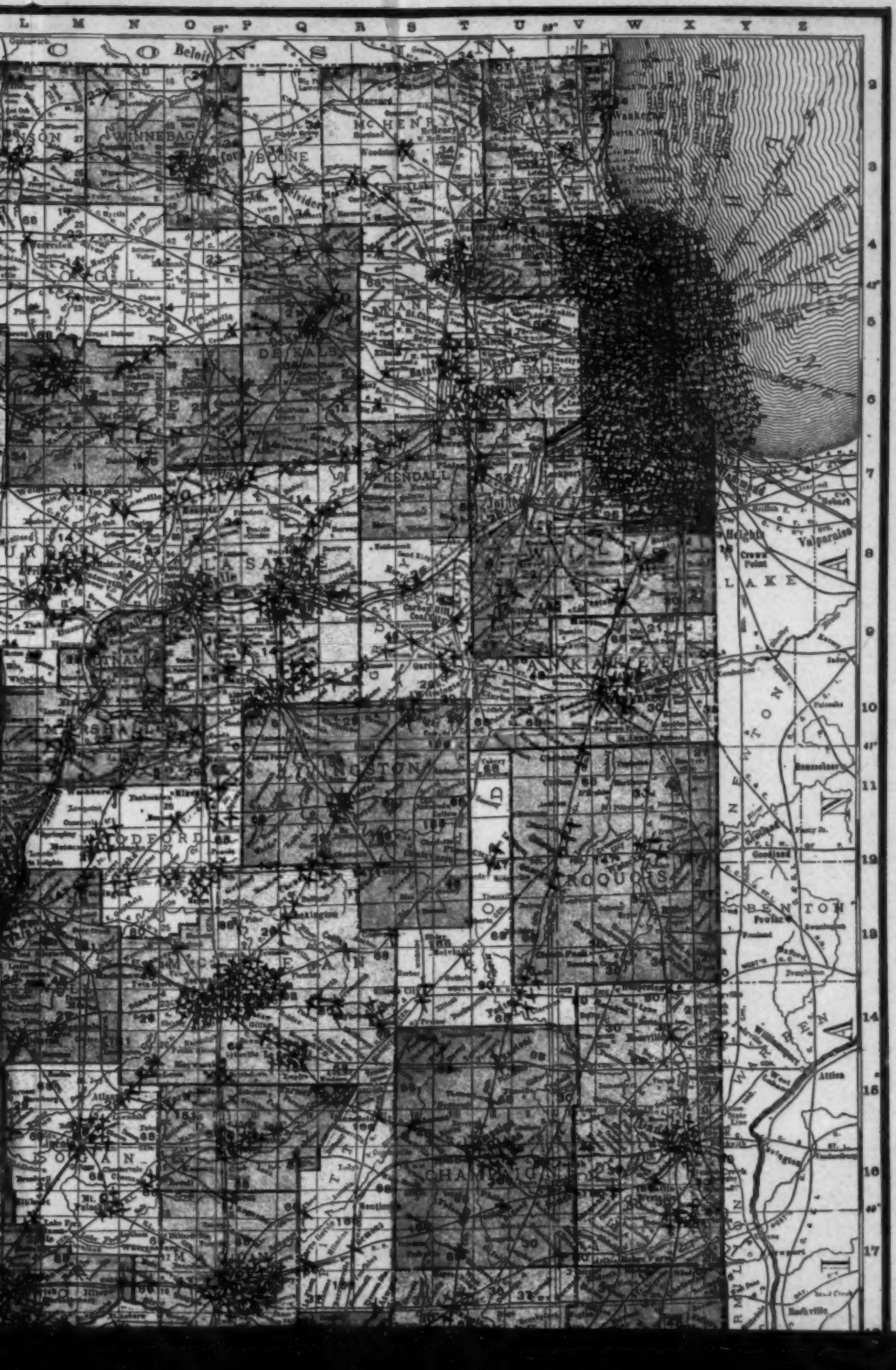
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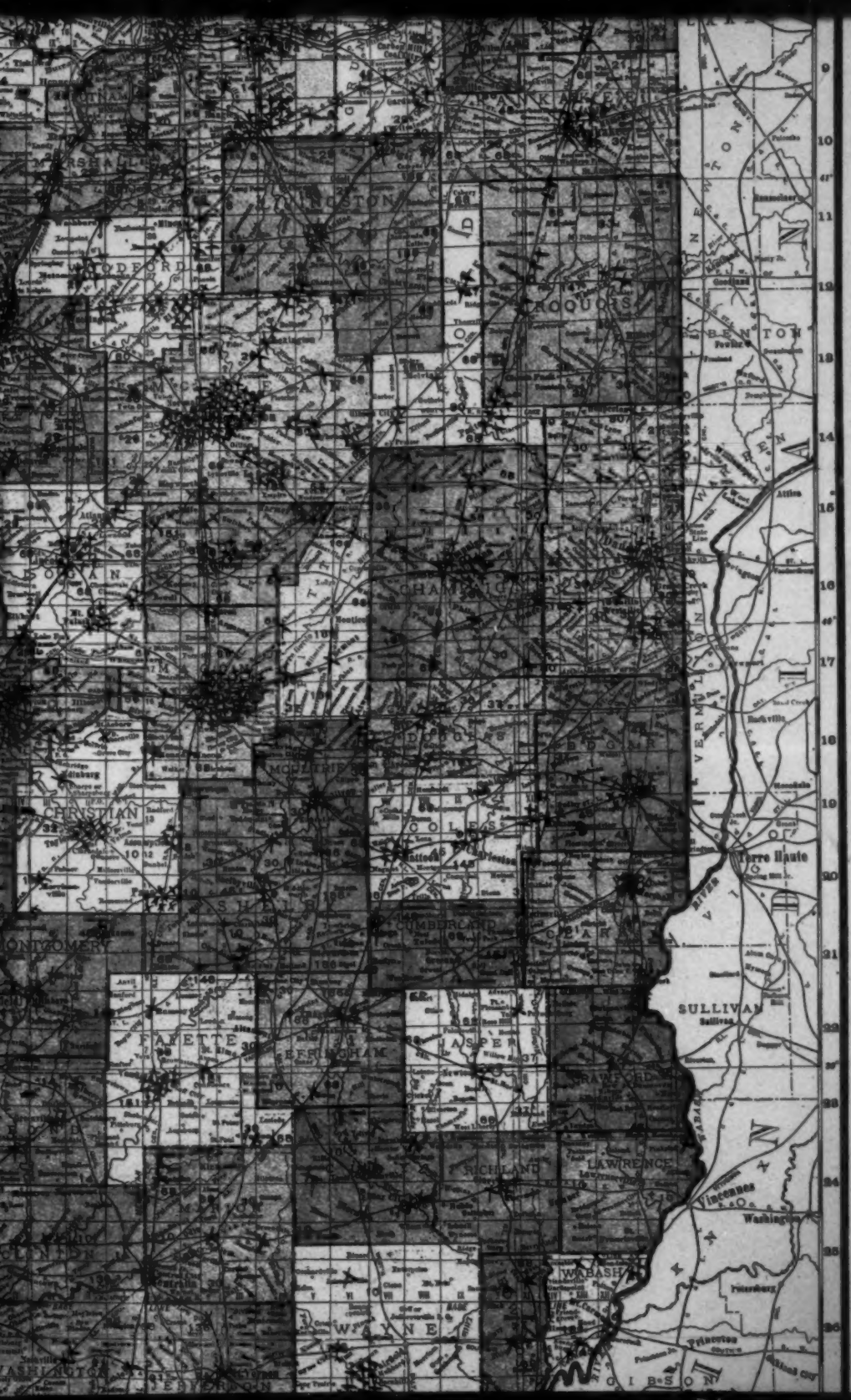
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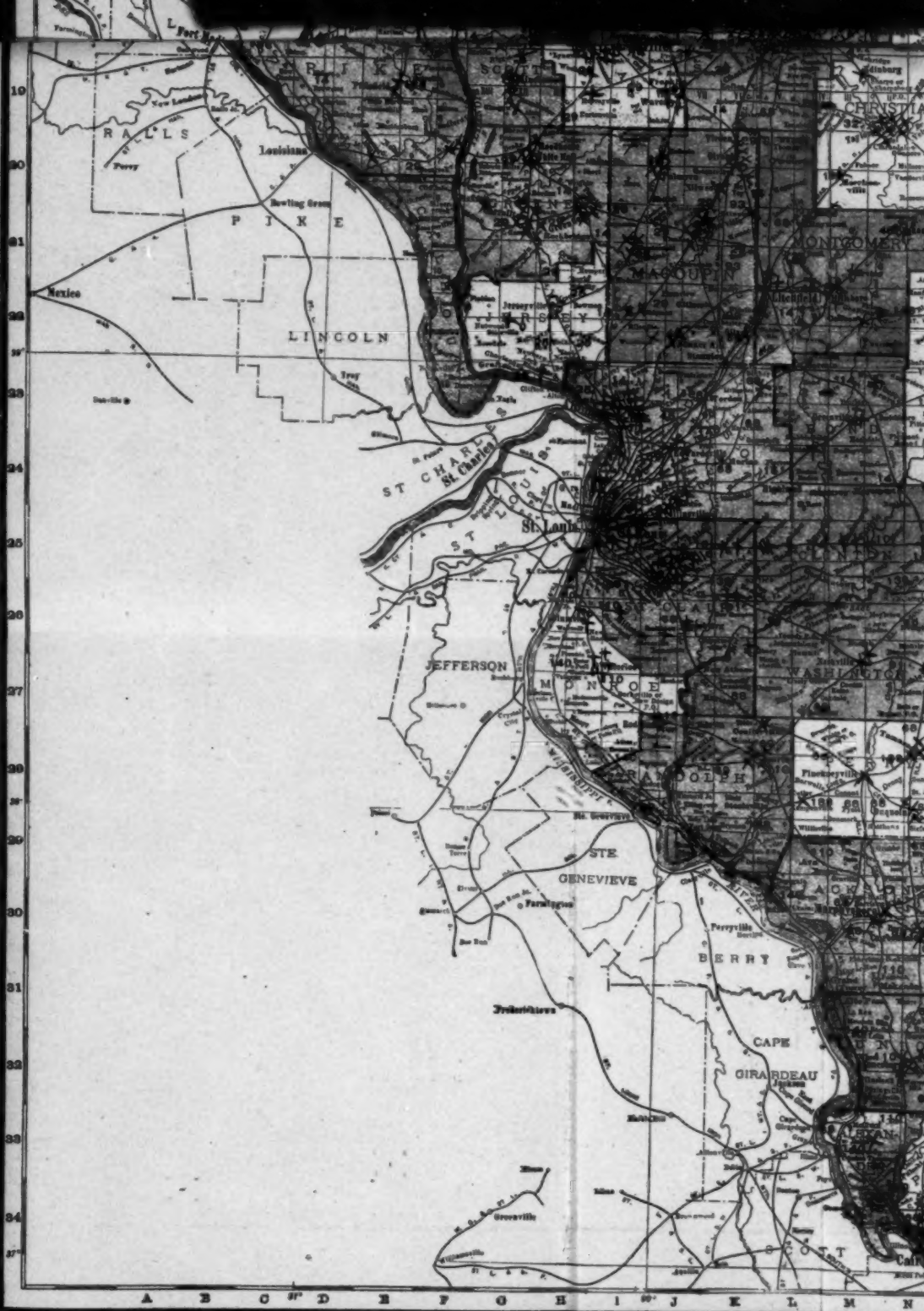
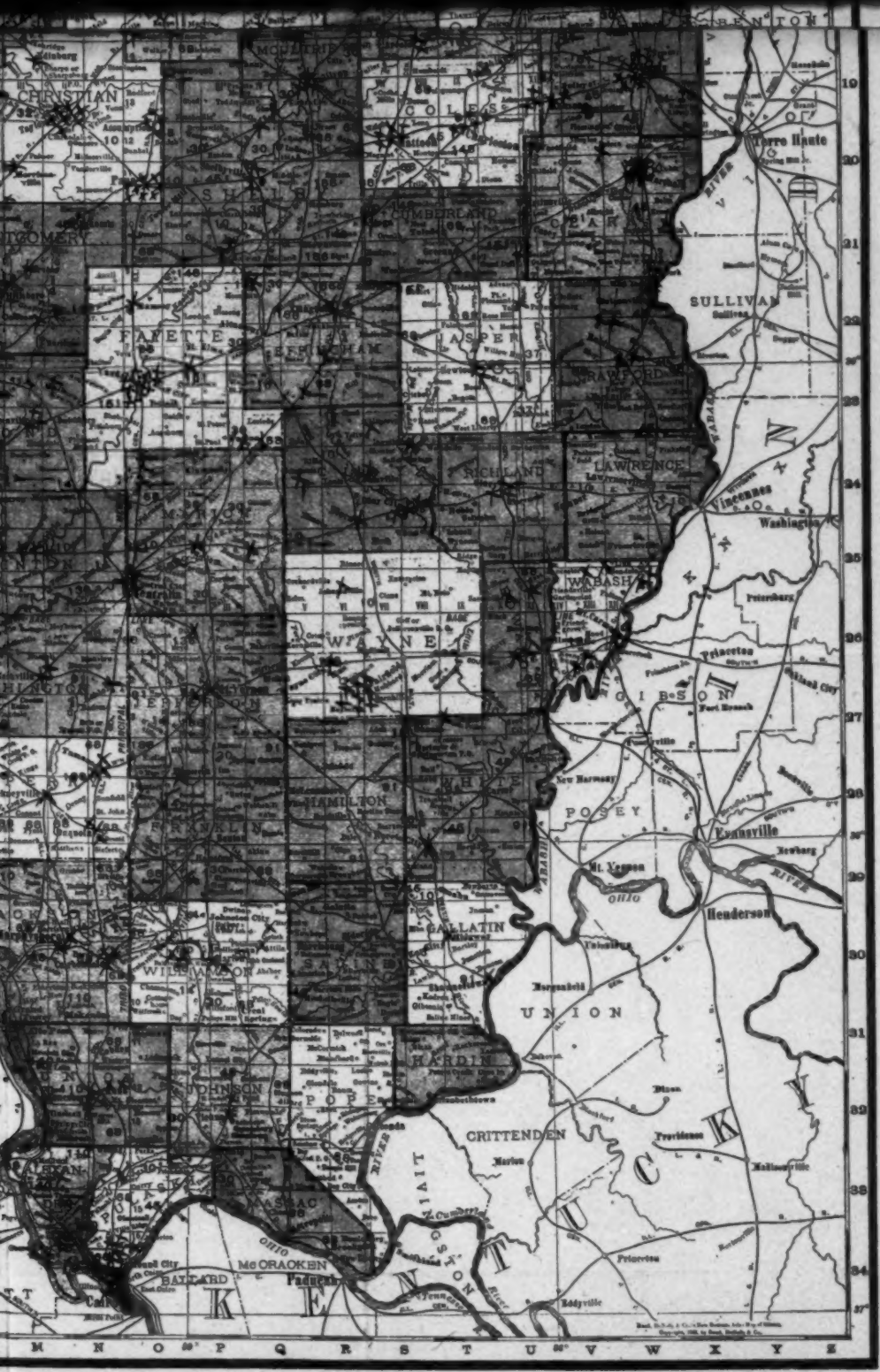


Rand McNally & Co., Map Publishers

Map showing residences of members of the Illinois State Medical Society, 1849-1898. The small circles show residence of
of other members.



Rand Co., Map Publishers and Engravers, Chicago, 1913

v residence of those who took an especially active part in the work, while the small crosses show the residence r members.

thus dispelled the empirical beliefs regarding the effects of mineral baths, formerly considered in the practice of balneology.

We thus see that hydrotherapy and balneology are practically one and the same, and that the mineral content of waters or muds quoted to the infinitesimal point have no more, no less value than the reaction to the heat or cold used in their application, modified by pressure, friction, time or other method of technic.

Hinsdale[2] says: "The capacity for infinite gradation and its utmost unbounded applicability to various pathologic states justifies the claim, made with growing insistence, that the use of water commands the first place in modern therapeutics." To understand the therapeutic application of water in its very varied forms demands that we not only know anatomy and physiology, especially of the skin, the nervous system and the cardiovascular system (the heart and blood-vessels), but also, we should be familiar with the biochemistry of the body, in health and in disease. In addition, we must have a working knowledge of the physical and chemical qualities of waters to be used in hydrotherapy. Then, of course, follows the clinical consideration of the diseases to be treated, indications for treatment, contra-indications and the varied problems which modify the manner and form of using hydrotherapy.

Physical therapeutics has been a neglected part in the practice of medicine largely due to the perfunctory methods and inadequate facilities for proper teaching of this most important and valuable adjunct in treatment.

Experience, too, is necessary in order to recognize the limitations of its practice, especially in the use of hydrotherapy. Campbell[3] well says: "One of the first lessons the young physician has to learn — too many never learn it at all — is the limitation set by Nature on his therapeutic measures." Hydrotherapy is a two-edged sword, and until one grasps its primal principles in treatment he had better go slow and gradually learn its potency as well as its dangers. Again, the young physician must grasp the importance of his patient as an individual, learn not only the science, but the art of medicine and thus see the workings of human nature in health and in disease. He will learn that the art of medicine is as old as time itself — but that the science of clinical medicine belongs to modern medicine. "The real physician is the one who cures; the observation which does not touch the art of healing is not that of a physician, it is that of a naturalist." As Walsh[4] says: "Where they are indicated, balneotherapy, hydrotherapy, mechanotherapy, electrotherapy, massage, and all forms of external treatment should be used rationally and not merely conventionally. The individual and not his affection must be treated."

The water and its physical properties must be understood, as the value of water thus used is in its capability to act as an agent, a vehicle, to convey temperature impressions, which, as before stated, are the essen-

2. Hinsdale: Hydrotherapy, W. B. Saunders Co., 1910.
3. Campbell on Treatment, Wm. Wood & Co., 1907.
4. Walsh, Psychotherapy, Appleton, 1911.

tial elements in hydrotherapeutic practice. Baruch[5] has briefly stated the physical properties of water as follows: "Water possesses a remarkable capacity for absorbing heat without being itself much elevated, and giving off heat without losing itself very materially in temperature."

The quantity of heat required to raise the temperature of 1 pound of water 34 degrees suffices to elevate to the same temperature 2 pounds of oil of turpentine, 8 pounds of iron or 35 pounds of mercury. The temperature-conducting capacity of water is twenty-seven times greater than that of air. Water conveys to the skin much stronger thermic impressions than does air at the same temperature, a fact easily discovered in exchanging a room temperature at 75 degrees for a tub at the same temperature. The enormous physical changes which water is capable of accepting as the result of different temperatures enhances its value as a flexible thermic agent. In the form of ice, steam vapor, etc., it evolves thermic values which are impossible in other conveying agencies.

To secure the value of water in any form in practice we need but to devise mechanical contrivances which will afford the uses to which we wish to apply it. Precise, controllable and efficient mechanical devices make it possible to regulate the time, method and form of application, and thus an enormous range of effect in usage is obtained. Safety should be the watchword, and while mechanical means insure this within the range of ordinary possibilities, if guided by the trained and experienced mind of man, yet, the dangers should be understood and no device depended on without intelligent supervision. We are dealing with such a flexible therapeutic agent that we must ever keep in mind the fact that it requires brains as well as mechanical devices and hands to use it. The perfect control which the chief physical property — namely, its fluidity — affords in regulating not only its temperature, but the size, form and character of the stream, enables it to be directed to any part of the body for local or general effects. Then, again, the capacity of water to respond to various degrees of pressure endows it with power to produce mechanical effects on the nerve- and blood-supply of the skin, which forms one of the most interesting and least appreciated elements of hydrotherapy. It requires demonstration to some to prove this last statement, but in the practice of nervous and mental diseases this one feature alone is one of the most valuable therapeutic agents we have in treatment.

Here, again, skill and supervision and a well-regulated mechanical device, become essential to successful practice. The possibilities of irritations and even destruction of tissues from misapplied hot water under pressure are facts to be always kept in mind.

Cold and heat are, from the standpoint of physics, two representations of the same caloric force. All warm-blooded animals depend on the regulation of so-called animal heat in order that they may maintain health. Man has a normal constant body temperature, 98.6 F., which temperature is maintained automatically through two distinct mechanisms, one for heat generation, the other for heat elimination. One is

5. Baruch, Hydrotherapy, Wm. Wood Co., 1908.

physical, the other chemical in action; both are correlated in action through the nervous system.

Physical regulation is controlled by the skin through the action of the nervous system. Cold, in its caloric action, abstracts heat and in this reaction causes contraction of blood-vessels. This contraction inhibits the loss of heat by radiation. If cold is applied for only a short time, on its withdrawal we note the "reaction," which is a hyperemic state, caused by dilatation of vessels, increased heat loss, etc.; a redness or glow of the skin follows.

Experimental research has shown that the physiologic reaction of the body occurs in the application of both cold and heat. It is this reaction which is sought in the practice of "hydrotherapy." We all know from experience in the bath, and especially as boys in the "old swimming hole," how cold water affects the body. On entering the water there is shivering and apparently intense cold, especially when the water touches the abdomen and chest. In a moment, however, reaction occurs — a sense of warmth follows, the pulse is increased in force, respirations, first shallow, become deep and a sense of well being follows. This is "normal reaction"—the stage of exhileration, but we also know that if we stay in too long a depression follows, the lips become blue, fatigue of the body occurs and the danger of cramps follows. If one leaves the bath during the stage of exhileration the sense of well being may last all day. This is the tonic effect sought.

The physical explanation of the foregoing effects is as follows:[6] First, the rapid abstraction of heat from the body by water colder than body temperature lowers body temperature, the heat not being generated fast enough by calorification centers for maintenance of body temperature equilibrium. To conserve what heat is in the body and to prevent evaporation through the skin — the skin blood-vessels contract, sending the blood to the warm recesses of the body, leaving the skin surface cold. This causes, through the nervous system, a recognition of the fact that more blood is needed to produce heat, more exertion of the heart is necessary to propel the blood and the blood must be forced to the surface as a defense reaction, hence heat production is increased, blood is forced to the center and under stimulus of the heat from within new metabolic exertions, increased stimulation of heart and blood-vessels, the reaction occurs. Thus is the tonic effect of the cold bath evolved.

If the bath is prolonged, overstimulation, with fatigue, abnormal fatigue, abnormal metabolic disturbances, toxic in type, results and the nervous system suffers. Functional activities are inhibited and undue relaxation occurs.

The rapidity and degree of reaction to cold is an individual problem, thus emphasizing how necessary it is to have knowledge not only of the technic of hydrotherapy, but of individuals as well.

Winternitz generalized some of his experiences regarding reactions as follows: "The secondary warming of a body is the surest sign and most marked symptom of reaction. The reaction is greater within

6. Hare: Therapeutics. Lea & Febiger, 1912.

moderate bounds, the lower the temperature; the greater the fall, so much greater will be the temperature of the reaction. The long continued and gradual heat abstraction is followed by slow reaction. The best reactions with least heat loss are obtained by cold applications of short duration. The degree of body heat before application of cold influences reactive temperature increase. If the body is very warm it will react more strongly to cold. The application of heat before the cooling procedure increases the intensity of reaction. A combination of cold with mechanical stimuli (massage) increases reaction. Reactions in general are dependent on the thermic stimulus of the nerves."

Baruch has shown that reaction is due to the stimulation of the peripheral sensory nerves, which in turn convey these impressions to some portions of the central nervous system and changes in local innervation result, according to which ganglionic centers receive these irritations. Head has worked out the localization of the peripheral sensory nerves with reference to referred regions, so-called zones, which are of diagnostic value and of service in treatment in working out the thermic and mechanical reactions necessary to secure desired local therapeutic results. These zones are one of the newer aids to diagnosis and treatment.

Modern hydrotherapy in the rationale of its therapeutic value considers all such aids not only in diagnosis, but in the selection of the form and manner of applying water. We have noted the effects of cold in producing reactions, now let us consider heat and its therapeutic application.

Heat is used locally and has a reaction distinctly its own. There is no systematic reaction as in the application of cold. There is an increase of internal temperature and an attempt by the bodily organism to strike an equilibrium as accumulated heat must be radiated or danger to the nervous system results, producing first, heat exhaustion, and in a more intensified form of accumulation, heat-stroke, commonly called sunstroke. The application of heat to the skin through the medium of water, steam or vapor, without an opportunity for heat radiation, causes a rise of body temperature of from one-half a degree to three degrees, and when inhibitory action of thermic centers results, then exhaustion follows, and body temperature may reach 105, 107, 108 degrees F., or more. The hot bath, hot pack, may become a source of danger unless carefully watched, because of the fact that radiation cannot take place and heat accumulates in the body with disastrous results.

Heat is best used in the form of warm baths, or warm packs. Warm baths increase the circulation of the skin, by withdrawing blood from the viscera, increase the elimination of CO_2 — increase nitrogenous metabolism, increase the pulse-rate, but lessen the respiratory activity. The prolonged action of warm bath or pack is sedative to the nervous system, lessening nervous excitement, lessening pain and producing a general feeling of languor. The warm bath used as continuous bath in mental disorders at a temperature from 70 to 90 degrees F., has a sedative, hypnotic effect. Its use has now became quite general in hospitals for

the insane in treatment of manic and delirious phases of mental disorders.

The wet pack (sedative pack), however, is superior to the warm bath in producing the calmative and sleep effects desired in mental and nervous diseases, even where excitement is a feature. The tonic, sedative and revulsive reactions of water through its use as a vehicle in thermic bearing properties are due, as physiology has taught, primarily to the blood circulating through the tissues of the body; the direct or indirect results being due to the ratio of arterial blood circulating in the tissues affected. Vascular activity is therefore important — it is the equalizer, because accumulated heat in organisms or tissues is balanced by the streams of blood circulating in them.

Hydrotherapy utilizes these physiologic processes in reducing or elevating temperature in the body, in stimulating the nervous system and in promoting excretory and secretory functions of organs. We must get away from the idea that temperature equalization is the sole object of hydrotherapy—this is only one of the objects. We seek to stimulate through thermic influences the activities of organs and tissues in order that they may carry on their true physiologic duties. The reactions which rehabilitate excretory functions, which reestablish metabolic functions, which give good, clean, new blood to tissues, are what we seek.

The clinical side of hydrotherapy requires familiarity with the body at work, both in health and in disease, and a rather profound knowledge of diagnosis which includes most all disorders coming within the range of internal medicine and in the special field of nervous and mental disorders. We must know when not to use hydrotherapy as well as when to use it. Many of the mistakes, disasters, of which I have known many, were errors of omission rather than commission in diagnosis.

The practice of hydrotherapy requires one to be familiar with the physical properties of water; skill in the manipulation of the apparatus used and an intelligent interpretation of prescriptions given by the physicians. Baths for remedial purposes require rooms and apparatus specially designed. The equipment may vary from a simple outfit sufficient to meet all requirements to a most elaborate and expensive outfit with all appurtenances which appeal to the eye rather than to utilitarian values. As engineers and local managers of water-supplies, I dare say, sooner or later with the advancing needs of modern hospital equipment, you will encounter the problem of designing the room and installing hydrotherapeutic apparatus. For this reason I beg to briefly review some of the needs of an efficient serviceable outfit and give you some of the don'ts which experience in an extensive use of hydrotherapy in our state hospitals has emphasized.

The various concerns manufacturing bath equipments have vied with each other in designing apparatus so that you have at your call the services of any one of these concerns in aiding you in the selection of an outfit up-to-date in efficiency and service. The room necessary to install the equipment, practical and of sufficient size to meet the varied usages of hydrotherapy, must be at least 16x20 feet, preferably situated on the

ground floor with water-proofed walls and floors, the floors to slope so that adequate drainage can be insured. It must be well ventilated and have proper lighting effects. The apparatus to be installed and required should consist of a stationary bath tub, specially designed; that is, it should be longer and wider than the ordinary bath tub. It should have a large intake properly connected for hot and cold water, with a control table or mixing chamber; it should have a large discharge waste, with overflow. There should be in this douche-room a shower-bath, also properly connected for hot and cold water with the controller table. The shower should contain all sprays necessary to give both general and local spray treatments. There should be a sitz bath tub, a perineal spray — both of which to be connected for hot and cold water with the controller table. There should be a shampoo table, properly equipped. The controller table is a most essential part of the equipment, and should include all the connections before mentioned, and in addition, Scotch douche equipment with regulators for water pressure control, pressure guage, thermometers which will work and with supply pipes large enough to meet all demands. The valves of the controller table need to be watched, as leaks, especially from the hot water intake, may cause serious harm if not carefully watched. The valves should be cleaned from time to time, to remove scale, and should be reground from time to time in their seats to remove all erosive effects on the valves. This is a practical fact overlooked not infrequently. As a result, a valve with a small leak may, under continuous pressure with water charged with rather high mineral content, soon cause an erosion which causes the dangerous leak. Only experienced operators should be allowed to operate the controller table. Adjacent to the douche-room there should be a room where packs may be administered and where the electric full-bath cabinet may be operated. This apparatus is a necessary adjunct and will displace the expensive Turkish bath equipment. An improvised Russian vapor bath can be installed at small cost, displacing the expensive Russian steam bath equipment.

With such an equipment just outlined all of the modern therapeutic indications for hydrotherapy can be met. Now as to the don'ts in installing such an apparatus. First, do not install it on the floors above the first. (Preferably, such an outfit should go in a sub-basement room.) In spite of the care in building a douche-room on the first or second floors or higher up, leaks will occur in the floors or in the walls, or a broken pipe will flood adjacent territory and cause trouble. Again, the steam vapors, etc., in spite of door and window arrangements, conspire to create trouble in adjacent rooms, etc. A quiet, retired part of an institution best meets the indications in servicable location. The ice-boxes, too, needed to regulate the coldness of water and to keep the supply of ice needed in packs, are best served when their location is such that they can be filled in wagon-load lots. The water-supply necessary for hydrotherapy, as before stated, must be hygienic; free from mud, debris, and should not be foul in odor. It should be unlimited in quantity. Continuous baths may be arranged in series, controlled at one table, or each

tub may have its mixing chamber. Continuous baths should be given in a separate room adjacent to the receiving wards.

The applications of hydrotherapy with an equipment and water-supply just mentioned cover a wide range. The manner and form of application of hydrotherapy is a medical problem in which should be considered, primarily, the contra-indications to hydrotherapy. It is too late to consider contra-indications after the damage is done. Forewarned is forearmed. Hence the necessity of a thorough physical examination of the patient before hydrotherapy is used. Acute, subacute and chronic disorders of the heart, including aneurysm of the blood-vessels, require great circumspection and a nicety in technic which only the most experienced therapist can determine. Routine examinations should be thorough—blood-pressure watched and every care used to note reactions out of proportion to the stimulus applied. It is better not to resort to baths under ordinary conditions in heart diseases, and packs need constant oversight. I have seen ordinary cleansing baths prove fatal in such cases. In the use of Nauheim baths in heart lesions a special technic is to be followed and great care here is absolutely necessary. The blood-pressure apparatus and clinical thermometer, are indispensable in observing reactions in hydrotherapy practice. Clinical charts in such cases should be carefully kept. In certain lesions of the kidneys, in certain brain lesions and metabolic disorders, caution is needed in estimating the dangers to be encountered.

The wide range of value in the use of hydrotherapy in acute and chronic disorders in general, and in nervous and mental disorders in particular, are best estimated by experience and careful study of the literature on the subject. The beneficial results in the treatment of typhoid fever by the Brand method has placed a high value on hydrotherapy and developed newer phases in medical practice, and especially in education of nurses in this field of practice. The treatment of acute infectious diseases has been greatly advanced by the application of hydrotherapy. The greatest value perhaps has been in the practice of nervous and mental diseases, especially the latter.

Hydrotherapy is the most valuable and most generally available means of practice now in vogue. The effects noticed are sedative, tonic and eliminative. The sedative effects are secured through the application of the warm bath, the pack, the continuous or prolonged bath. Insomnia, restlessness, excitement, manic phases, etc., are the indications for the use of sedative treatment. Tonic effects are secured through the cold pack for fifteen minutes followed by the douche, massage, etc. These measures are indicated in depressed states, in dementia praecox cases, certain phases of paresis. Elimination is obtained through the revulsive pack, the electric bath, the Turkish bath, etc., followed by douche, etc. These baths are taken daily and for a sufficient length of time to get results. An exact technical consideration of indications is necessary first as to form of bath, the manner of giving and clinical detail to be observed in each case.

There are many physicians, including some hospital managing officers even in Illinois, who do not appreciate the value of hydrotherapy, and who look on the apparatus and routine of practice as "fuss and feathers" — the apparatus as an "expensive toy" — and all because of ignorance, the lack of definite information and a tendency to cling to old idols. The treatment of mental disease has, through hydrotherapy, been revolutionized, the burdens of responsibility in treatment lessened by providing more precise, more scientific, more reliable methods of securing the three great indications in such treatment, viz., sedative, tonic and eliminative results without the undesirable results not infrequent in the train of certain drugs which are used to secure sedation, etc.

Illinois proposes to train her own operatives in hydrotherapy. We have decided to have a training station at Kankakee where a graduate in physical therapeutics will teach the practical technic and where physicians familiar with the principles and practice of hydrotherapy will conduct the class work.

General hospitals, private sanatoriums and even physicians' offices should have at hand the facilities to meet the indications for hydrotherapeutics as we now see them to-day. Every community of at least ten thousand inhabitants should have a complete equipment, which could be conducted as a private hydriatic institute, to which patients could be sent for treatment. Water companies could cooperate to make such an institute a credit not only to the community, but to the company and all who would cooperate in making water as a therapeutic agent available and serviceable to that community.

THE STERILIZATION OF THE INSANE, CRIMINAL AND DELINQUENT *

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In venturing to appear before you to discuss this important topic, I feel that I owe you some apology. I have had but little time for the preparation of this paper and have also had but little opportunity for the collection of any properly digested facts or statistics. Nevertheless, the subject is one of such interest to me personally and has been so much emphasized as a highly desirable measure that I felt it my duty as well as pleasure to accept your kind invitation. From this remark you will gather that I am not in favor of the measure under discussion. This has added to the difficulty of the preparation of this paper for the reason that I am not informed of the exact measure which is being supported before you. My remarks are based on the law enacted in Indiana which has been the foundation of most of the legislation on this question.

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This act is entitled, "An act to prevent procreation of confirmed criminals, idiots, imbeciles and rapists," and was approved in March, 1907. It provided for the compulsory sterilization of these classes of individuals and enunciated certain very necessary safeguards to its practical application, among which I would especially emphasize the following: "But this operation shall not be performed except in cases that have been pronounced unimprovable."

My own work on this topic necessarily deals more especially with the insane, but I would like to insist that to a very large extent the stock is the same as that which provides the feeble-minded, the criminal and the delinquent. The more one studies the insanities the more one appreciates that the occurrence of a mental disorder which we call insanity is in greater or less degree dependent on some inherent defect in make-up. The harmonious adaptation of the organism as a whole to the conditions of life is the especial function of the nervous system, and we must include under this term, conditions of life, not only the happenings in our surroundings, but also the state of our own bodies. Adjustments have to be made to meet sickness of, and accident to, our bodies, and in the complex conditions in which we live and strive to obtain the fulfilment of our natural instincts and desires, it is obvious that the highest brain activities which represent what we call our mental life, must be involved to a greater or less extent. The presence of an infective disease of the body makes demands on the mental mechanisms of the brain as well as on the more vegetative functions of the tissues, leukocytes, etc. We know for a fact that certain individuals are more liable to suffer from delirium as the result of such infective disease than others, and this must be due to the particular construction of the nervous system with which these persons are endowed. Such deliria may therefore well be regarded as evidence of more or less instability. It has long been recognized that even a poison like alcohol, is to some extent a test to stability; that the defective and unstable are less able to withstand the effects of alcohol than the more robust. Obviously there must be a limit to every individual's power of endurance and adjustment to intoxication, and it is probably true that a severe infection may result in delirium in the strongest and best developed man. The same may be said even of the insanities accompanying many of the more definitely organic diseases of the nervous system, such for instance, as general paralysis of the insane, in which there is unquestionably something in the make-up of the individual which permits this development as the result of infection with syphilis.

Such inadequacies in make-up are generally admitted in the etiology of those insanities which we call functional or constitutional, and these form the large majority of all cases of so-called insanity. I am at once prepared to urge and admit the importance of heredity as a very large factor in the causation of such defects. Even where faulty environment and education seem to play an important part it is probable that a defective soil is also present.

It is perhaps unnecessary to quote statistics concerning the influence of heredity in the causation of insanity, but I may give you some figures

on two of the most important types of mental disorder which we meet commonly. According to Kraepelin, defective heredity is present in 80 per cent. of all cases of manic depressive psychosis. This, in my experience, is not an overstatement of the facts. In dementia praecox, Kraepelin gives 75 per cent., while Wolfsohn places it at 90 per cent. In a very small number of healthy individuals, Diem found that 65 per cent. showed defective heredity when investigated in the same manner. The fact of defective heredity, therefore, cannot be questioned. The value of these statistics for our purpose, however, is very small, for we do not know the proportion in which this defect was present in the immediate parents of the patient. According to Bleuler, insanity is present in the parents or grandparents of his dementia praecox patients in 35 per cent. (Kraepelin gives 18 to 19 per cent.), but unfortunately does not show what percentage of these were committed for this insanity. Even did we know what proportion were committed, the figures would be still of small value to us in relation to the question of sterilization, for we would still require to know how many of these were certifiably and unimprovably insane prior to the birth of the patient in question.

I have here some charts showing the heredity of cases of various types of insanity which have been under my observation. I would say that these charts have been taken at random from those in my possession and have not been specially selected for the purpose of this argument. From these charts it can readily be seen that heredity is a very important factor and I would especially call your attention to the fact that in not one instance has any parent or grandparent been under conditions in which he or she would have been affected by the operation of any law providing for sterilization prior to the birth of the patient. It is true that there are examples in which parents have actually been committed as insane and even unrecoverably insane, but the patient in each instance has been born before the parent came under observation.

If we consider the effect of such a law on these two types of mental disorder somewhat further we find certain other features which also tend to minimize its value. The patient suffering from dementia praecox is, with very few exceptions of doubtful meaning, not going to recover. He is, therefore, a candidate for sterilization under the Indiana law. But, and this is the crux of the whole question, he is also never going to be restored to the full rights of citizenship. I can give you no figures concerning the following statement, but, nevertheless, it is one which I believe to be very largely true: The number of children born to persons suffering from dementia praecox, after the recognition of the disorder has once required their commitment as insane, is an entirely negligible quantity. The majority of them remain within the walls of a hospital for the insane. Those who are permitted to return home only do so when conditions are such that close supervision is possible.

On the other hand, the individual suffering from a manic depressive psychosis nearly always recovers from the attack. The majority of them return to their homes, even if only for a short time. These persons are, therefore, not amenable to the law of sterilization, although the chances

of their procreation are far greater than with the dementia praecox patient. All physicians in insane hospitals know instances where children have been born to such parents. Yet the strain derived from a manic depressive constitution is fully as dangerous to posterity, if not more so, than that of the dementia praecox. If the law could be made applicable to these persons I would gladly endorse it. But it must be remembered that this means that you are dealing with an individual whose health in all probability will be fully restored and who may never have another attack of mental disorder. I shall be greatly interested to hear from Mr. O'Donnell whether such a law would be possible. This particular class of cases seems to me to be the only one in which such measures would be desirable, and yet the one in which they would be most difficult to enforce.

With regard to the feeble-minded and delinquent I am unfortunately unable to give you any widely extended personal study. I might, however, call your attention to the fact that there are examples of such individuals in the family trees already presented to you. For some, at any rate, the same arguments prevail, and it would seem that the enforcement of the Indiana law would not have prevented the birth of any of the cases in question. This problem has long impressed me as a very important one for actual investigation in a large series of cases, but I have been unable to do this myself. I have questioned the medical officers of the School for the Feeble-Minded at Lincoln, and while I realize that one has no right to draw any conclusions from such statements, I present the answers to you because they seem to me to be very near the truth. I am assured that very few, if any, of the children admitted to that institution are descended from parents who have at any time been under the care of the state. My informants are careful to add that there is no doubt that the parents are in a very large number of instances more or less feeble-minded. This we may accept without demur, but for this law to have effect on them it is necessary that they be definitely unable to care for themselves. It therefore seems to me that even with regard to these children sterilization would have no effect under the present method of social organization.

We are then told that sometimes these children leave the institution. This is not a fact which would require the passage of a sterilization law. The obvious remedy is not to allow them to leave. Sterilization does not make them any better fitted to live in society; in fact, it brings with it certain other dangers to which I shall return later.

If we now turn to the criminal, and by this is meant the habitual criminal, the state of affairs is practically the same. Such individuals belong to the same group as those figuring in our charts as constitutionally inferior individuals and are just as much mentally defectives as the feeble-minded or the insane. I can give you no other figures concerning the heredity in these cases than those illustrated. If such individuals are capable of recovery the inherited defect is not great, and they are not subject to the Indiana law. If they are not capable of

recovery they are not fit to return to social life and would not be rendered any more so by having been sterilized.

The strength of the appeal which is made by the supporters of this measure lies in the presentation of the facts of defective heredity. We all recognize the truth of these assertions and the fact that some remedy is urgently needed. In my argument thus far I have tried to point out the futility of such a measure as that of sterilization. We are carefully reassured as to the absence of danger or harm to the person operated on. But nowhere have I seen or heard any statement as to the fact that this or that degenerate individual would not have been born if this law had been in force. Of all the charts which I have had the opportunity to study I have never yet seen one in which it is shown that this result would have been achieved.

Are there, however, no arguments which can be urged in direct opposition to such a proceeding? The sentimental side of it does not in any way appeal to me, although it has been strongly urged by some. I would willingly endorse the measure if it could be shown that any good, commensurate with the seriousness of the remedy, were in sight.

There is one argument against this measure which appeals strongly to me. You might, conceivably, prevent the birth of some few degenerate individuals by sterilizing a delinquent girl, but what of her ability to spread syphilis broadcast, to lay the foundation of degeneracy in numbers of approximately healthy stocks? The operation of salpingotomy does not prevent prostitution. It removes the risk of bearing children, and may thus remove one deterrent to promiscuous intercourse. Let me quote you a case which well illustrates my meaning. A delinquent girl of bad heredity had been committed to one of our state hospitals more than once because of the outburst of periods of excitement from which she rapidly recovered. Her life, the details of which she gave without shame or hesitation, had been one of the most degraded to the story of which I have ever listened. She had borne two illegitimate children and had had some abortions as well. Her relatives are comparatively well to do and had her committed to avoid the consequent public disgrace and the need to provide for the care of these children. Discharge from the hospital was refused by the authorities, but finally she was permitted to leave on condition that she be sterilized. This was done and the girl has gone once more to lead an immoral life. She has, to my knowledge, been infected with syphilis, and as she is endowed with very considerable beauty of face and form, she is most probably spreading venereal disease widely. Her relatives are spared the disgrace of illegitimate children in the family, the state the need for taking care of her. But think what this means to posterity. From any metropolitan area such as Chicago, the general paralytics number at least 15 per cent. of all forms of insanity. All these are due to syphilis. The children of paralytics show all kinds of degenerate traits which they will transmit to their offspring. Epilepsy, alcoholism, dementia praecox, criminalism, vagabondage, all occur in such families. This menace is no imaginary one, it is a condition and not a theory.

At the first glance one is strongly attracted to this comparatively simple and more or less harmless looking remedy. The heredity charts of such examples as that of the celebrated Jukes family are appalling. If the wished-for results could be thus easily accomplished who would hesitate when acquainted with the facts? But it seems to me that the proceeding is not only futile, but positively harmful. One gathers from reading the arguments favoring it that it is assumed that when sterilized these individuals can be safely set at liberty. But will it cause the unimprovable criminal or delinquent to cease from his or her evil ways? If so, let us hasten to sterilize them all and abolish our penitentiaries and reform schools. The unimprovable criminal, the hopeless delinquent and the incurable insane must always be kept under supervision, not only for the good of society, but for their own protection. This is a duty of the state and cannot be avoided whether the unfortunates are sterilized or not. And do not forget the dangers which come from prostitution which is the almost constant concomitant of delinquency and crime.

Much energy has been spent in trying to force this measure through this and other state legislatures. If the law is passed and fails, as fail it must, legislators are going to look askance at such social measures for dealing with the problems of eugenics. Even before it is put on trial, the existence of such a law is liable to give a false sense of security and inhibit the securing of really effective means for dealing with these difficult problems.

In concluding, I would emphasize the fact that my opposition to this legislation is not based on an objection to the operation of vasectomy or salpingotomy itself. I am prepared to recommend its use in properly selected cases, in which I believe it could almost always be carried out with the patient's full and willing consent. I do oppose it on the grounds that it will accomplish nothing and may lead to actually increased dangers.

WHEN IS OPERATIVE TREATMENT INDICATED IN CHRONIC DYSPEPSIA?*

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The stomach has been unjustly accused of more pathologic sins, and has received more unnecessary treatment than any other organ of equal size and importance. Nearly all of these transgressions are included under the general term "dyspepsia," about which much has been written and but little known until recently, when the pathology of the organs in the abdominal cavity has been correctly studied by direct inspection in the work of the abdominal surgeon.

We find in our best text-books on medicine beautifully written chapters on the classification, etiology, symptomatology, diagnosis and

* Read by invitation before the Chicago Medical Society, Jan. 29, 1913.

treatment of chronic dyspepsia, some of which have been copied and handed down for generations. These descriptions are full of errors as we now know from the study of the pathology of the living. The diagnosis was based mainly on theory and fancy, and was seldom correct; hence the treatment was empiric, and in the newer light of to-day is seen to have been often harmful. Unfortunately some of our best men who confine their work to the medical treatment of diseases of the stomach and intestines have not availed themselves of all the wisdom to be gained in the surgical arena by direct inspection of the diseased organs in the abdominal and pelvic cavities. The text-books on medicine tell us about acid gastritis, acid dyspepsia, hyperchlorhydria, flatulent dyspepsia and nervous dyspepsia as entities, when in truth most of these conditions are caused by gall-stones, appendicitis, peritoneal adhesions, pelvic infection, ileocolitis, intestinal tumors, etc., and the stomach is trying to tell us about a pathologic condition somewhere else that is giving it trouble.

The term "functional dyspepsia" should be eliminated from medical nomenclature, for if this disease ever exists it is so infrequent as to be practically negligible, and hyperchlorhydria is only a symptom, an increase in the secretion of hydrochloric acid, usually with no structural lesion of the stomach. Like the digestive enzymes, the secretion of hydrochloric acid may be increased or diminished by a change in diet and in other ways, as shown by Starling and Pawlow.

The effort to construct a pathology on chemical analyses of the stomach secretions has been a total failure, for practically the same chemical findings may obtain in several distinctly different diseases that cause the stomach trouble. The test-meal alone is of little value as an aid to diagnosis in either ulcer or cancer, and if we delay in the latter to confirm the diagnosis by this means, the disease will then have progressed so far that surgery can offer no relief. The presence of lactic acid, food remnants, blood, low acidity, and the Boas-Oppler bacillus, and the absence of free hydrochloric acid may be found in some cases of latent calloused ulcer and reflex pylorospasm, and are in no sense pathognomonic of cancer. In cancer there may be a normal or even a high acidity, and this is especially true when the pyloric end of the stomach is not involved. In such cases cancer may stimulate the pyloric glands to a more active secretion of acid.

While I do not deny that there is value in stomach analysis, it must always be subordinate to the clinical history and the physical examination. It is only an additional aid in diagnosis. Stomach analysis in chronic gastric and duodenal ulcer is of far less value in diagnosis than in stomach motility, which can be more correctly observed and more intelligently interpreted. The *x*-ray has been of much value in this particular in showing the motility in impaired stomach drainage.

Let me make a more definite classification of the causes of chronic dyspepsia, that we may have a more intelligent conception of the treatment best adapted to the cure of the trouble in the stomach, or to the removal or modification of the condition in some other part of the body

to which the stomach is trying to direct our attention in a language of its own, much of which may now be correctly interpreted:

1. In 90 per cent. of cases of chronic dyspepsia there is no pathologic lesion in the stomach, and the conditions requiring operation in the entire gastro-intestinal tract, and all structures in the abdominal and pelvic cavities do not exceed 30 per cent.

2. In about 30 per cent. the stomach trouble is caused by cardiac and kidney insufficiency, tuberculosis, arteriosclerosis, tabes dorsalis, etc.

3. Another 30 per cent. is caused by congenital or acquired defects in the viscera of the abdominal and pelvic cavities, plus gastro-intestinal neuroses—gastroptosis, enteroptosis, atonic dilatation of the stomach, etc.

Stomach complaint is the most common manifestation in neurasthenia, especially inborn neurasthenia. It has been said that the abdominal surgeon has invaded the territory of the physician and has encroached on his field, but this is not true. The same was said when the surgeon began curing appendicitis by removing the appendix, but no one will make that contention now, and those who are best able to judge know that medicine does not cure appendicitis, and that purgation in every case of acute appendicitis is positively contra-indicated. It quickly increases peristalsis of the lower ileum, appendix and cecum, fills this part of the bowel with liquid, with a great increase in the number and virulence of the bacteria, all of which is positively harmful, and is often the cause of perforation or gangrene of an appendix which might have caused no immediate harm had it been left at rest.

I do not remember to have operated for several years in a single case of perforated or gangrenous appendix until after the patient had been given a purgative. There can be no conflict between the well-trained and honest physician and surgeon, as both are striving to accomplish the same end — to cure the patient. The duties of one do not always cease where the duties of the other begin, but there is necessarily often an interlacing to give the patient the full benefit of the knowledge of both. Far better would it be for all concerned if the physician would follow his abdominal cases into the operating-room and study with the surgeon the pathology of the living. He and the surgeon might then have a more intelligent agreement about the diagnosis and treatment of the case.

It is probably true that some of the best-known men in internal medicine, men who contribute much to medical literature, have seldom or never seen an abdominal operation in a living person. This necessity for studying by direct inspection the pathologic condition in the abdominal cavity that causes the stomach to complain is no less necessary in the study of all diseases in the abdominal cavity that have no stomach manifestations. Since this has been done the traditional fads and fancies in the diagnosis of these diseases are passing away like the snow when the warm rays of the sun shine on it. Pelvic cellulitis is now suppurative salpingitis; pelvic intraligamentary hematocele is now ruptured extra-uterine pregnancy; idiopathic peritonitis in the right middle quadrant and perityphlitis are now appendicitis.

We were told that tuberculosis of the bladder was always primary and that tuberculosis of the kidney was usually an ascending infection, and secondary to the bladder involvement. We now know that practically 100 per cent. of bladder tuberculosis in women is secondary to kidney involvement; the same is true of 85 per cent. in men, the other 15 per cent. being secondary to tuberculous involvement of the epididymis, vas deferens, seminal vesicles and the prostate.

We were told that chronic ulcer in the stomach was usually multiple and ten times more frequent than chronic ulcer in the duodenum. We now know that chronic ulcer in the stomach is multiple in about 6 per cent. of cases and that we have one ulcer in the stomach to three in the duodenum.

We were told that the ingestion of food in chronic ulcer of the stomach and duodenum caused pain and symptoms in the stomach immediately or soon after eating. We now know that it seldom or never does so, except in old cases in which there is obstructed stomach drainage. In stomach ulcer food relieves pain for from one-half to one and a half hours, and in duodenal ulcer it relieves pain from one to three hours. This is so conspicuously true that a patient with ulcer in the stomach or duodenum will put bread in his pocket when he leaves his home or goes to his bedroom at night, to eat when pain returns.

We were told that gastric and duodenal ulcers were more frequent in women. We now know that about 75 per cent. of these ulcers are in men and about 25 per cent. in women.

We were told that in 90 per cent. of the cases gall-stones cause no symptoms, and that the gall-stones are innocent. We now know that there are symptoms in nearly every case of gall-stones and that gall-stones may at any time cause serious infections and secondary complications.

It will thus be seen that the surgeon who has built a new pathology based on direct inspection of the pathology of the living was often compelled to "tear down and reconstruct; he used the sledge-hammer and the crowbar as well as the trowel and the plumb-line." While the bladder could be directly inspected through the cystoscope and the ureters and the secretion of the kidneys by the ureteral catheter, and stone in the kidneys and bladder by the *x*-ray, no such record could be achieved by the gastroscope, and the *x*-ray had not been of much value except in inspecting stomach motility. It was therefore necessary to inspect the stomach and other abdominal viscera through an abdominal incision.

It was the gynecologist who made possible these great achievements by demonstrating in the surgery of the uterus and its adnexa that the peritoneum is tolerant to much manipulation when treated with reasonable respect, and by avoiding rough handling and the introduction of septic matter. The surgeon then began his invasions of the middle and upper regions of the abdomen, and must be given full credit for what he has done. In the investigative work of the abdominal and pelvic surgeon he has made the peritoneal cavity a research laboratory, and has given us the pathology of the living at a time when life may be saved by timely surgical intervention.

We must also give due credit to the excellence of the work done in the research laboratories in physiology, physiologic chemistry, bacteriology, etc., from the study of which so much has been learned of incalculable value to the surgeon and the physician in their treatment of all gastro-intestinal diseases, and all diseases of the intra-abdominal viscera. Cannon, Pawlow, Starling, Herter and many other research workers in the physiology of digestion and the motility and bacteriology of the gastro-intestinal tract have given us a practical conception of much that is necessary to a correct understanding of the pathology and the treatment of the diseases of the stomach and the intestines. The names of these men will live in history when the work of the surgeon will have been forgotten.

Before post-mortem investigation the practice of medicine was empiric and the diagnosis and the treatment of all internal and hidden diseases in the abdomen was based on fads and fancy. While the study of pathology in the dead was the beginning of the scientific study of disease, it led to pessimism, for it dealt only with end-results and showed conditions that did not exist at a time when the disease could have been cured. "But few people with chronic disease die of the disease with which they suffered during life"; most die of terminal infections or secondary complications.

The cellular pathology of Virchow was another scientific advance, but as it mainly dealt with end-results it was for the time being of but little practical use in curing disease.

It may thus be easily understood that in diseases of structures in the abdominal cavity we can build up no correct pathology at a time when the patient may be cured, unless it be based on direct inspection, through an abdominal incision, of pathologic conditions in the living.

The 30 per cent. of dyspepsia caused by general diseases is never surgical, nor is the dyspepsia cured by the application of treatment direct to the stomach. The treatment must be given to cure the disease that is causing the stomach to complain. The 30 per cent. caused by neurasthenia, atonic dilatation of the stomach, gastroptosis, enteroptosis, nephroptosis and gastro-intestinal neuroses will not be cured by treatment applied to the stomach. We must treat the condition that causes the stomach symptoms. The treatment of these cases is medical except in some cases of dyspepsia caused by ptosis of the right kidney and hepatic flexure of the colon, and midline ptosis of the stomach and transverse colon when the colon has remained fixed at the hepatic and splenic flexures.

In the first, the kidney and the colon may be elevated and fixed through a posterior incision, and in the latter we may sometimes obtain good results by shortening the falciform, the gastrohepatic and the gastrocolic ligaments, one or all as may be indicated by the condition, this to be supplemented by stitching the great omentum across the anterior abdominal wall two inches above the umbilicus, to serve as an apron for the stomach. Coffey has done good work of this kind, as have others by similar operations; but in cases of general enteroptosis with continued

dyspepsia, operative treatment has done but little good. Most of these patients have inborn neurasthenia, and to treat them successfully we must begin with their great-great-grandparents, an undertaking beyond the limit of medicine or surgery. These patients and others with inveterate stomach trouble with acquired neurasthenia, gastro-intestinal neuroses and the gastric crises of tabes dorsalis have been persistently treated by the physician and the quack, and the surgeon has left his mark on the abdomen following a laparotomy for gastrojejunostomy. They have been treated by electricity, by Christian Science and osteopathy, have had their stomachs daily lavaged and have taken all the vile nostrums of the advertising "patent-medicine" fraud, with about the same result. They continue to complain of stomach trouble and are only too willing to try something else.

Fortunately the surgeon in his treatment of these patients in the last few years has learned much that is of value in guiding him against doing unnecessary or harmful stomach drainage operations. The impaired drainage in these cases is the result of atonic dilatation and impaired stomach motility, and not of obstruction. In such cases gastrojejunostomy does not drain, can do no good, but has done much harm. No surgeon who should be recognized as capable of treating the diseased viscera in the abdominal cavity would now try to drain the stomach in these patients. Acute ulcer of the stomach or duodenum is toxemic, caused by septic foci in other parts of the body, and is never surgical unless it be for perforation. These patients either die promptly or recover in a few weeks. Hematemesis, with no characteristc symptoms of long standing, is not surgical for it may be profuse or fatal when no ulcer can be seen, and it requires a magnifying glass to see the general erosion or fissure from which the blood is oozing. Vomiting of much blood is not an unusual symptom in cirrhosis of the liver and enlargement of the spleen, and it may be caused by acute or chronic appendicitis. That appendicitis has a causal relation to the etiology of gastric erosion or acute and chronic ulcer is evidenced by the frequent association of these conditions, and the appendicitis often appears to antedate the stomach trouble. In Hutchinson's report of twenty-four deaths caused by postoperative hematemeses, twenty-one followed operations for septic appendicitis. Every abdominal surgeon of broad experience has observed the frequent association of a chronic appendicitis with dyspepsia, and has noted the fact that in these cases, if the stomach has no organic lesion, the dyspepsia is cured when the appendix is removed.

Dyspepsia in some degree is nearly always associated with gall-stones, the removal of which cures the stomach trouble. The same is true when the dyspepsia is caused by intestinal or peritoneal adhesions or pelvic infections. When the exciting cause is removed the dyspepsia disappears. This, however, presupposes that there is no lesion in the stomach or elsewhere that may cause the dyspepsia. It is not infrequent to find in these cases an association of chronic appendicitis and gall-stones, and we may also find stomach or duodenal ulcer, to which peritoneal adhesions, pancreatitis and pelvic infection may sometimes be added. Just here lies

the necessity for the surgeon to make an examination of all the structures in the abdominal and pelvic cavities through a wide incision, where there is no contra-indication. The failure to do this has often given an excuse for criticizing the surgeon because the patients were not cured; he was accused of doing unnecessary surgery, when he should have been censured for not doing enough surgery.

In my operative work in the abdomen I never fail to make the most thorough examination of all the viscera of the abdominal and pelvic cavities except in septic cases, and in cases in which the condition of the patient is such that any continuance of the operation would endanger the immediate result. Were I to report in detail the many cases of chronic dyspepsia of long standing, with no stomach or duodenal lesion, which have come under my observation and been cured by the removal of all the pathologic conditions in other abdominal structures, the report would be too long for any one to read.

There is but one treatment that can cure the inveterate dyspepsia caused by calloused gastric or duodenal ulcer, and that is surgery, and always surgery. The symptoms may subside under other treatment, by diet, rest and the observance of correct hygienic and sanitary laws, but the disease is not cured; the symptoms have disappeared to return at another time. This is conspicuously true in duodenal ulcer. Some of these patients have been cured many times, but the symptoms always return, and in the cases of permanent cure there was an error in diagnosis; the patients never had calloused ulcer. They are always made worse in cold, damp weather, and they improve or may be entirely cured of symptoms in warm, dry weather. They are made worse by worry and overwork, but if the worry is removed and the work lessened they improve. A change from a damp, cold climate to a warm, dry climate will be followed by much improvement, or even by cure of the symptoms. These seasonal changes are so manifest that patients who can afford to do so will change their residence with the change in season. The above is true in a lesser degree in chronic calloused gastric ulcer. The anamnesis in these cases, particularly in ulcer of the duodenum, is of greater value in diagnosis than are all other symptoms combined.

While the treatment of chronic gastric and duodenal ulcers is operative, we must always be able when the stomach or duodenum is exposed to demonstrate by sight or touch, or by both sight and touch, the presence of an ulcer. This can be done, for the ulcer has invaded all the layers of the wall. If no ulcer can be seen or felt, the abdomen should be closed at once, unless a pathologic condition that the stomach has been trying to tell us about can be found somewhere else.

In all cases of duodenal ulcer and in nearly all cases of gastric ulcer a gastrojejunostomy is indicated. In duodenal ulcer the ulcer should be infolded by several linen or silk sutures introduced from side to side and deep enough to include the vessels going direct to the ulcer. Excision is seldom indicated because the patients are cured as well without it, and cancer seldom, if ever, develops in a duodenal ulcer. As nearly 75 per cent. of cancer in the stomach develops in a chronic ulcer, then in addi-

tion to the gastrojejunostomy the ulcer should usually also be excised. In many of these excised ulcers McCarty and some other pathologists have found well-developed carcinoma.

In conclusion I wish to note that 90 per cent. of ulcers in the stomach are in the lesser curvature, and that 90 per cent. of ulcers in the duodenum are in the first inch of the bowel; that 25 per cent. of calloused ulcers in the stomach and 75 per cent. in the duodenum, and that gastric ulcers are in the stomach and 75 per cent. in the duodenum, and that gastric ulcer is multiple in about 6 per cent.; and that 75 per cent. of gallstones are in women and 25 per cent. in men. In every case of duodenal ulcer there is an excess of free hydrochloric acid at some more active phase of the disease, and this is practically true in stomach ulcer, but to find the excess frequent examinations must be made at different stages of the trouble. In every case of duodenal ulcer, and in all or nearly all cases of stomach ulcer, free or occult blood will be vomited, or found in the feces if the examinations are repeatedly and correctly made. Dr. Craven Moore of Manchester, one of the most painstaking pathologists in England, reports that in a long series of cases in which operation was performed for duodenal ulcer he found in every case an excess of acid, and occult blood in the feces. While ulcer in the pyloric canal of Jonnesco is relatively infrequent, I recently found in two cases in which I operated open perforation just proximal to the pyloric vein.

526 Fourth Avenue.

PRACTICAL STUDIES IN TUBERCULOSIS*

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CHICAGO

The progress of an insidious disease is sometimes better understood by the presentation of a reasonable number of statistical facts. In so doing, I do not wish to be considered an alarmist or a pessimist. We are dealing largely with a social problem, a disease concerning the masses, intimately associated with their every-day life and various vocations.

The necessity for conserving human life can more readily be understood if there is absolute evidence that we are dealing with a mildly contagious disease, capable of destroying life, yet, on the other hand, easily cured, if early diagnosed and promptly treated. The annual loss of life from tuberculosis in this country may be conservatively estimated at two hundred thousand. In the length of time the Civil War occupied, one million died, three hundred and fifty thousand more than were lost from all causes in the war.

In Chicago there are about 4,000 deaths annually. Capitalizing the man's earning power, the cost of his illness and death, Chicago loses thirty-two million dollars a year from this one disease, nine million more

* Read before the Chicago Medical Society, Jan. 22, 1913.

than is required for the city's government, four times the cost of running the county and fifty times the amount expended for State Health Department work.

In 1904 the deaths from tuberculosis in Illinois represented a monetary loss to the state of forty million dollars. Admitting that 75 per cent. of the incipient cases could be cured in sanatoria, the state, by properly providing for these unfortunates, would annually save thirty million dollars. The loss of earning power during two or three years' illness, and the increased cost of maintenance during this period of time have been estimated as equal to the direct loss from death.

The most unpleasant consequences incident to an epidemic of acute contagious disease in this city are insignificant as compared to the ravages of tuberculosis. In the former instance the disease strikes down like a thunderbolt from a clear sky, and fills the people's hearts with terror and fear, but in the silent watches of the night the white death stalks unobserved and unheeded, devoid of the spectacular, unrelenting and unmerciful, until death has won its victory and the shadows fall.

Five per cent. of the patients now under observation at the night clinic for the tuberculous at the Iroquois Memorial Hospital will within a year pass from a state of partial disability to one of complete disability, with dependency; their economic activities as individuals will cease; their usefulness as citizens in this community and state will end. Owing to the inadequate facilities at present at our command, it will be impossible to restore them to lives of activity and usefulness.

A careful study of 185 wage-earning males in this city, concerning their original and ultimate economic condition, shows that 40 per cent. became dependent on charity, and during the course of their illness 14 per cent. died in charitable institutions, and the majority of the others received at some time charitable aid, probably through the United Charities of this city, one of the most efficient and thoroughly organized associations cooperating with us in our work among the tuberculous poor.

The night clinic at the Iroquois Memorial Hospital represents patients physically incapacitated in practically all fields of endeavor, clerks largely predominating, and I believe the records from the trade clinic at the Rush Medical College will show tuberculosis largely an occupational disease, dependent in some measure on the unsanitary conditions under which men, women and children toil and live year in and year out. The records will show no evidence of tuberculosis in the case of the young prisoner prior to confinement. He returns to society in many instances a physical wreck, again a charge on the community. There lies a remedy for all this that we trust an awakened public conscience will apply. The miner develops an anthracosis in the soft coal mines; he is free from tuberculosis prior to engaging in this occupation. And so with the metal polisher, burr stone cutter and innumerable other occupations, where there is no evidence of a tuberculous dyscrasia prior to employment.

Alcohol and venereal excesses are potent factors in lowering the physiologic resistance of those engaged in outdoor occupations, such as

teamsters, usually considered healthy, a large percentage of the cases seeking relief from tuberculosis at the municipal dispensaries falling into this class.

It is evident, therefore, that this problem is of interest to the profession from a medical and humanitarian aspect, and to the public and laity from a social and economic standpoint. It is a melancholy reflection that a disease so prevalent in every country and climate, and from which neither age, sex nor condition of life enjoys immunity, a disease presenting so many complex economic problems, should until recently have been less understood and worse treated than any other to which humanity is subject.

Without regard to the circumstances of the patient or stage of his disease, change of climate has been freely prescribed. We have lacked that commendable loyalty to our home climate that the present-day methods in caring for the tuberculous have so largely created. We have in the past opened the door to regrets that have harrassed the minds of thousands of consumptives at a time when they most required repose, and in many instances the disease has progressed rapidly to a fatal termination and the expatriated invalid has found not only a foreign climate, but a foreign grave. The present-day educational propaganda, the day camp, open air school and free dispensary must be inseparably linked to the hospital and sanitarium — these latter institutions for the compulsory isolation and retention of the tuberculous in both the curable and incurable stages. The almost total lack of control exercised over the tuberculous patient in our public institutions is evident to the most casual observer. This should be remedied by appropriate legislation and such disciplinary measures employed as will hold these patients in the public institutions to which they are assigned for treatment. The infection of the entire family from a single open case is too frequently observed to lead us to assume that these measures are too radical in their practical application, or savor of an interference with personal liberty.

Our knowledge and the accumulation of facts relative to the modern treatment of tuberculosis is due in great measure to the influence of the earlier teachings of such men as Alonzo Clark, who, fifty years ago, advocated the sanitarium for the care of the tuberculous. Rush, in his treatment of consumption, directed men into paths that are to-day followed. Bowditch was one of the first to revive the doctrine of the infectiousness of consumption and suggested a mode of treatment which precluded the possibility of the direct transmission of the disease. Trudeau has experimentally demonstrated the value of pure air in resisting tuberculosis.

In 1897 the Muskoka Cottage Sanitarium was established at Gravenhurst, Ontario, the first hospital, I believe, to be established by the state for the care of consumption. Since the establishment of the Gravenhurst Sanitarium, there is scarcely a geographical division in the Union not interested in the establishment of a hospital for tuberculous patients.

We cannot hope through the medium of the private sanitarium to achieve the most far-reaching results in the solution of this problem.

The formation of antituberculosis associations, which, through private benevolence, should initiate and control the sanitarium movement, will not accomplish the desired end. These institutions, like other private sanatoria, must exclude all the indigent tuberculous patients, accepting no hopeless cases, and the very element that should be brought under control still a charge on their friends; if friendless, they soon become dependent on the County, or are left to die alone in some tenement house loft, in a crowded city.

State and municipal institutions should be established for the care of the tuberculous poor, that they may be cured of their disease, and returned to the commonwealth able-bodied citizens. The prolongation of life by the suppression of preventable disease is of much greater value to the state than the cost of the means employed. In the light of recent brilliant achievements in serum-therapy, let us hope that a more specific treatment for tuberculosis may yet be discovered. The toxemia incident to cell disintegration in the course of tubercular infection calls for more study. The intoxication incident to cell death opens the field for the greatest possibilities for scientific research and achievement.

Tubercular toxemia not being due alone to the Koch bacillus, we must consider the products set free in the human organism after the death of the bacillus, a toxic element, also a toxemia so little recognized after tissue death at the site where the tubercular process evolves, and, finally, the toxic element determined by the microbic associations.

Professor Bruschettini's communication to the Seventh International Congress at Rome marks a step in original research far in advance of all others. His endovenous or endotracheal injections into the lungs of Koch bacilli determine a flow of leukocytes therein, "after a period of time according to the size of the animal and the quantity of virulent bacilli injected, generally when the emaciation of the animal is destroyed by bleeding, the lungs collected aseptically, finely triturated with quartz powder, made into an emulsion with distilled water, placed in the agitator for about twelve hours, filtered by double chardin paper." This liquid, injected into healthy rabbits, shows itself to possess toxic qualities without, however, showing phenomena, like tubercular intoxication. If, however, this liquid is introduced into an animal which has previously undergone an injection of tubercle bacillus, we see an aggravation of the symptoms shown by the animal rapidly manifest themselves. There is a rise of temperature, with slow but progressive emaciation.

With no other means is an evolution of the consumptive process so rapid. It is with this toxic substance that he hopes to see the serum-producing animals efficaciously react, and he hopes to obtain a serum endowed with combative properties against the tubercular cell.

In the course of these experiments, Professor Bruschettini has been able to observe that the more extended the destructive process of the pulmonary parenchyma, the higher toxic power of the extract, and he is now pursuing researches made by injecting in the lungs of tuberculous animals certain pyogenic microorganisms, or the product of their metabolism.

In possession of this toxic substance, he proceeds to immunize various animals, in order to study the properties of their serums. He endeavored to obtain a serum which should possess some antitoxic properties which might neutralize even slightly some of the secondary phenomena of tuberculous infection. I commend to your perusal Professor Bruschettini's classical paper, presented to the Seventh International Congress on Tuberculosis, at Rome, April, 1912, from which I have briefly abstracted. I would ask your kindly consideration of the reports that will doubtless be published from the Brompton Hospital, London, and from the Municipal Clinic at the Iroquois Memorial Hospital of this city, covering a group of cases inoculated with this serum vaccine, and also the original reports of the control in lower animals, to be appended. We are nearer the goal of scientific achievement than ever before in the treatment of tuberculosis. Let us look to the future with all its possibilities and with honest endeavor and conscientious effort on our part may we solve this most complex scientific problem.

2733 North Clark Street.

DISCUSSION

Dr. John Ritter: Dr. Wheaton has presented to us a very able paper. Personally I have not had any experience with the Bruschettini serum and am somewhat in doubt if it has any distinct advantage over tuberculin. It is a sero-vaccine supposed to possess both active and passive immunizing properties. It is the experience of all that tubercular subjects are usually very hopeful and credulous and any innovation appeals to them and the application of any medicament by means of the hypodermic needle is much desired and so the giving of a serum or of tuberculin will have some beneficial effect upon them. Herold Vallow, of England (*British Medical Journal*, July 15, 1911), has treated a number of tubercular patients by injecting, at regular intervals, 0.1 or 0.2 c.c. of normal salt solution, carbolized (1 per cent.) with very gratifying results. The fever declined, night sweats ceased, appetite improved, cough lessened, weight increased; in general the patient's condition improved. There are now 80 different serums or vaccines on the market and I do not know that any have a decided advantage over the others and all, including Maragliano's serum, are very similar in therapeutic effect.

Dr. Albert Polon, Winfield, Ill.: The sero-vaccine of Prof. Bruschettini has had only limited applications at the Winfield Sanatorium, hence I am not in a position to give an opinion on its therapeutic value. Only a few injections have thus far been administered. We intend, however, to give this remedy a thorough trial especially for the purpose of parallel observations on cases on which we have been using the other specific remedies for tuberculosis without favorable results.

Working along the lines of Carl Spengler and his school, we are using both human and bovine types of tuberculin for therapeutic purposes. The selection of the type of tuberculin is decided by the greater intensity of the Von Pirquet reaction which is done simultaneously with the human and bovine Koch's old tuberculin on the two arms.

If the cutaneous reaction is more intense with the human type, then we use the bovine tuberculin therapeutically and vice versa. We often found that patients reacting unfavorably to one type of tuberculin would show a considerable improvement under the influence of the other.

There are, however, a number of cases which are not suitable for any form of tuberculin, and these are the cases on which we intend to try Prof. Bruschettini's serum. We are using it intramuscularly.

INJURIES TO LUNGS AND PLEURA; WITH REPORT OF A CASE *

P. Z. McDONALD, M.D.
CHICAGO

The diagnosis of pleural or lung involvement is not always easy. Some cases with extensive injury may show very few symptoms, while others with little injury will show marked symptoms.

The pulse is often remarkably full and strong, due probably to vasomotor influence. In injuries of the three cavities, skull, chest and abdomen, the symptoms of primary shock are greater as we go downward.

If the pleura only is involved, the patient usually has an anxious expression, cough, dyspnea, abdominal breathing, sharp localized pain on inspiration, which may be referred to the abdomen, and emphysema of the subcutaneous tissues. In the absence of these, physical examination will give definite signs of pleural exudate or hemothorax, later a friction sound may be heard over the area of injury. If pneumothorax already has developed we have rapid respiration, absence of normal respiratory sounds and hyperresonance. If bleeding has occurred, there will be flatness over the most dependent part of the chest, with absence of fremitus and respiratory sounds.

If the lung is involved, there is, in addition to the above, greater dyspnea, more distressing cough, bloody or frothy sputum and greater tendency to depression of the heart and collapse. Occasionally, on auscultation, air may be heard issuing from the wound in the lungs.

In many lung injuries marked symptoms set in at once. The patient is unable to stand, becomes pale, trembles, his voice becomes weak, extremities cold and clammy, he has livid lips, protruding eyes, distressing cough, dyspnea, superficial respiration, short, rapid, irregular weak pulse and abdominal breathing.

Dyspnea is the most alarming symptom and may develop rapidly, due to the extension of a pneumothorax or hemothorax. It may not occur for several days, and be due to increased intra-thoracic pressure from constant hemorrhage.

Hemoptysis may be absent entirely, but is fairly constant in extensive injury. Its presence depends on damage to bronchi or bronchioles. Küttner states that it may last from ten minutes to fourteen days.

Emphysema is fairly constant, and more extensive in stab wounds. In military practice in recent years it was seen more often than pneumothorax. It may begin at the base of the neck as in the fracture of the ribs, and may become very extensive.

Hemothorax in its extent and occurrence, depends on the size and condition of the blood-vessels injured. Extensive bleeding may occur from injury to internal mammary or intercostal arteries. Makins notes that even in severe cases symptoms were not fully developed for three or four days.

*Read before the Englewood Branch, Chicago Medical Society, Feb. 4, 1913.

Hernia of the lung is more common in large stab wounds, and occurs during expiration because of increased intrathoracic pressure.

The prognosis should be extremely conservative in all injuries of the lungs or pleura. The external wound may heal and the lung recover, and yet there is danger of sepsis, pleurisy, pneumonia, abscess and empyema. Senn, in his text-book presents an interesting series of such cases.

Simple penetrating wounds are usually favorable. The presence of foreign bodies may delay recovery; even when no reaction occurs at first, they may set up trouble later. Projectiles are least likely to do so; points of knives, wood splinters, or other sharp-pointed bodies will cause more trouble, because of trauma, and the greater likelihood that they carry infection. Stab wounds are less fatal than gun-shot wounds, as they produce less trauma and do not extend so deeply into the lung, but there is greater danger of empyema.

Pneumothorax is seldom complete and is sometimes absent in injuries from small caliber arms. Unless it is extensive, it is insignificant. Rehm, after exhaustive research, concludes that in pneumothorax the chief danger to circulation and respiration is due to displacement of the bronchi of the sound lung. The pulmonary ligament is stretched from the hilus to the diaphragm, and the bronchi, veins and arteries are bent and displaced, reducing the blood- and air-supply of the sound lung. A right pneumothorax is more unfavorable than a left, because of the greater lung area shut off.

Hemothorax may develop steadily and the patient die of compression. The natural closure of a severed vessel is prevented, as each inspiration sucks blood from the open vessel, and consequently any hemorrhage into the thoracic cavity may prove serious.

Irritation of the vagus may be sufficient to stop breathing in inspiration, or the heart may stop from reflex action.

Empyema is a common complication; the usual atrium of infection is from without.

Pneumonia often results from extensive pneumothorax or traumatism. Patients often show a rise of temperature from the absorption of blood in recent hemorrhage, or of fibrin from an old clot. Careful differentiation must be made between recent hemorrhage and sepsis in any increased temperature. Successive total and differential leukocyte counts will greatly aid in this. Küttner has seen symptoms resembling pneumonia which he explains by the absorption of blood.

In treatment it is most important that the patient be kept absolutely quiet. A patient may resent restraint in an apparent trivial wound, yet it is likely that many sequelae, and particularly hemothorax, result from failure to insist on absolute quiet.

Morphin, ice-bags and cool drinks, will help to control hemorrhage, and to keep the patient quiet. The wound should not be examined with probe or fingers.

Opinions differ as to the advisability of hermetically sealing the external wound. As the real object is to shut off the pleural cavity from

without, closure under antiseptic precautions and a sterile dressing will accomplish this.

Blood, temperature and pulse should be watched closely. Foreign bodies should not be disturbed unless of a nature, or in a position likely to do harm. The percentage of their recovery is low and the patient is subjected to too much danger in the attempt.

Usually in chest injuries the patient is stricken in good health, his resistance is at its maximum. The question of surgical measures should be settled as early as possible and no time should be lost in instituting the measures judged best for each case. Conditions are more favorable for an early opening of the chest cavity.

Extensive hemorrhage may be controlled by permitting or inducing complete pneumothorax, or even going in and ligating the bleeding vessels. No patient should be allowed to die without effort being made to control the hemorrhage, as pneumothorax is less to be dreaded than hemothorax.

In pressure symptoms, aspiration affords relief and promotes absorption; forced aspiration should be avoided.

Micheaux resected the seventh and eighth ribs, emptied a blood-clot from the pleura near the root of the lungs, packed the wound and left two drains. The wound suppurated, but the patient eventually recovered.

In hernia of the lung, replace during inspiration—excise any damaged portion.

CASE REPORT

CASE 1.—M. P., an electrician, aged 20 years, came to me Monday night, Sept. 19, 1912, to have dressed a slight cut on his chest. He had walked two blocks when he noticed blood on his shirt and decided to go to a doctor.

I found a small clean wound at the left fifth interspace about one-half inch left of the nipple line. There was no external hemorrhage when I saw him, the wound did not gap and it looked like a shallow cut in the tissue of the chest. He said he had been carrying his companion on his shoulders and in attempting to bump him against an electric pole, he had slipped and fallen. He thought a bit of glass or a nail might have cut him. He had felt no pain or discomfort and did not know he was injured until he felt the blood on his shirt.

I instructed him to lie upon the table while I dressed the wound, and upon attempting to do so he developed a marked dyspnea and could not lie down. Up to this time I had not thought the wound of any consequence and was rather disgruntled that he should go to a doctor for such a small matter. He could not now sit erect but sat leaning to the left, left arm akimbo and hand resting on hip. Pulse was 74, full and strong, lips pale and expression anxious, respiration rapid, shallow and grunting. Further questioning developed that he always carried a knife in his outer coat pocket, which he used to clean his nails and to skin wires. In this pocket I found the handle of a pocket set curved bistoury with the blade broken off and missing. The coat pocket lining and his shirt showed a cut slit corresponding to a position over the injury, showing plainly its cause. I put on temporary dressing and took him to the hospital at once.

Dr. Waska took several x-ray pictures of the chest; the first over the wound was negative, the second and third showed the knife blade lying on the diaphragm. Considerable difficulty was experienced in taking them as the patient could not lie down. He had complained of pain in this region both at my office and at

the hospital. At the hospital he developed an emphysema over the left chest anteriorly. There was but slight pneumothorax; his pulse was very full and strong and there was but little cough. He complained only of dyspnea and pain in the left side.

Dr. Stevens was consulted after we located the blade and he will describe the surgical measures instituted.

Tuesday after the operation our patient developed a temperature and in the evening we found some consolidation in the middle portion of the lung posteriorly. He had to be catheterized for several days and developed a cystitis, which lasted only a short time. He progressed nicely with a very little temperature until Friday noon, the fourth day, when pulse and temperature began to rise and pneumonia set in.

There was an area of dullness on the left side posteriorly extending from the spine to the axillary line and from a little above the angle of the scapula to the base. The lower portion of the lung was not yet filled up. There was increased vocal resonance and Skoda's resonance above affected area. There was no cough and very little dyspnea at any time. Temperature 102 to 103, fall by lysis, pulse about 100 to 108 during attack. Empyema was ruled out by the physical and clinical findings in connection with daily total and differential leukocyte counts. The pleural cavity was aspirated the fifth day as a further precaution and only a few drops of sterile blood obtained.

About noon of the 7th day temperature and pulse began to go down and were nearly normal on the eighth day. He improved steadily from this time. Sat up the tenth day and went home on the fourteenth day.

An area of flatness continued from the scapula to the base and from the spine to the midaxillary line, which we attributed to a blood clot or thickened pleura.

The first night our patient was home he was very restless, had considerable pain in his chest and could not get his breath when lying down. He stayed home one week, his temperature running betweeen 101 to 102 and pulse 95 to 100.

The twentieth day we aspirated his chest and drew off about an ounce of serum which coagulated soon after withdrawal. Microscopical examination showed this to be sterile.

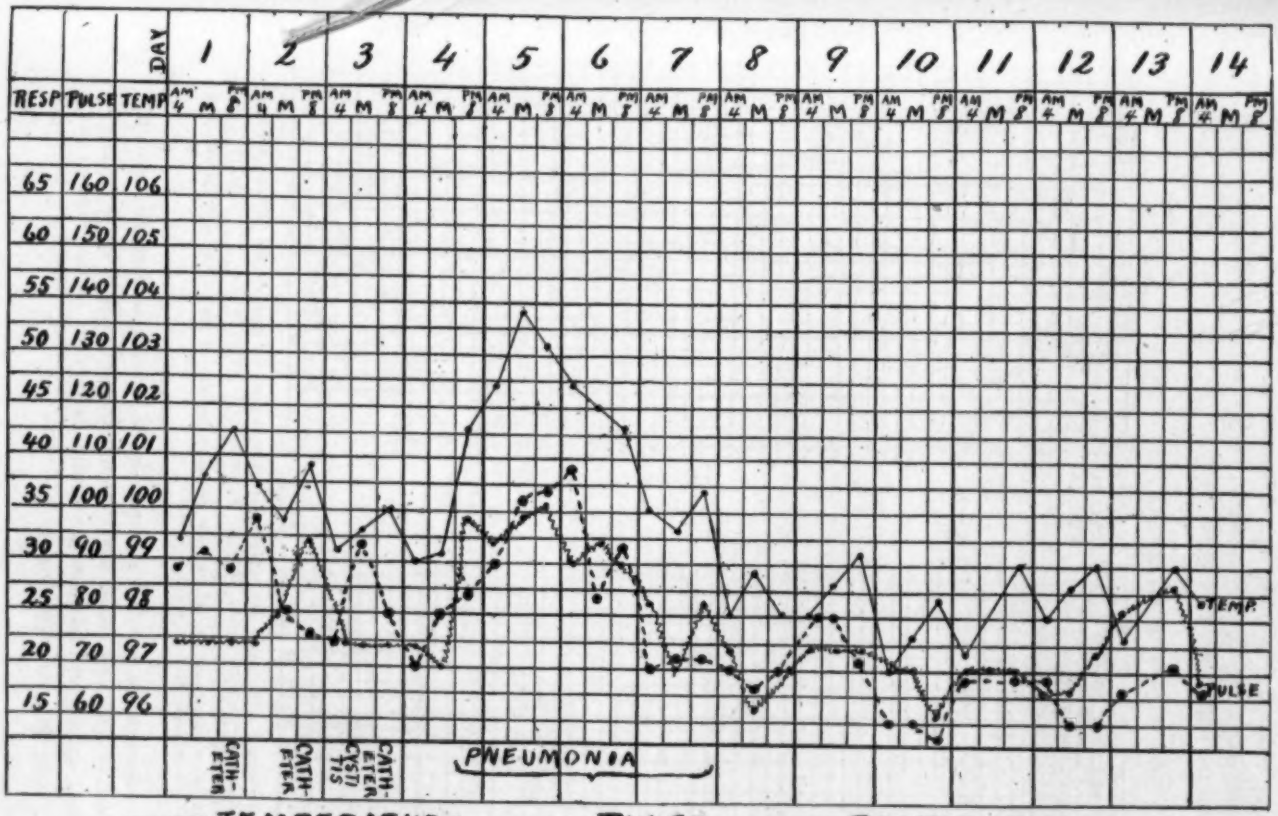
On the twenty-second day we sent our patient back to the hospital to be kept in bed and for better attention. His temperature came down the following day and remained so and we permitted him to go home again on the thirty-second day, the clot being sufficiently absorbed to cause no further trouble, although absorption was not complete for ten days more.

The temperature changes are interesting in this case. First immediately after the operation we had a temperature of 101.5 which fell slowly for four days; then we have pneumonia curve for four days and later we have a rise due to absorption of fibrin from the blood clot.

Most interesting is the accompanying blood picture; the leukocyte counts not only corroborated our clinical findings but enabled us to forsee by some hours the progress of our patient's condition.

Following J. F. Hultgen's most excellent work on this subject, we felt that our interpretation of the clinical findings was correct, and at no time were we fearful that sepsis might have caused any of them.

As a guide in the management of any chest injury, total and differential counts are as important as any other clinical finding. Successive total and differential leukocyte counts should be made in every case of chest injury, and a chart prepared from them gives valuable aid in the interpretation of the other data, management and prognosis. Discrep-



——TEMPERATURE ----PULSE ~~~ RESPIRATION

TEMPERATURE, PULSE AND RESPIRATION CHART 1ST. 14 DAYS · CASE M.P. CHEST INJURY

Chart 1

ancies, unless due to faulty technic, can always be harmonized by a more careful examination of the patient; in fact, an overlooked condition is often the reward for good blood work.

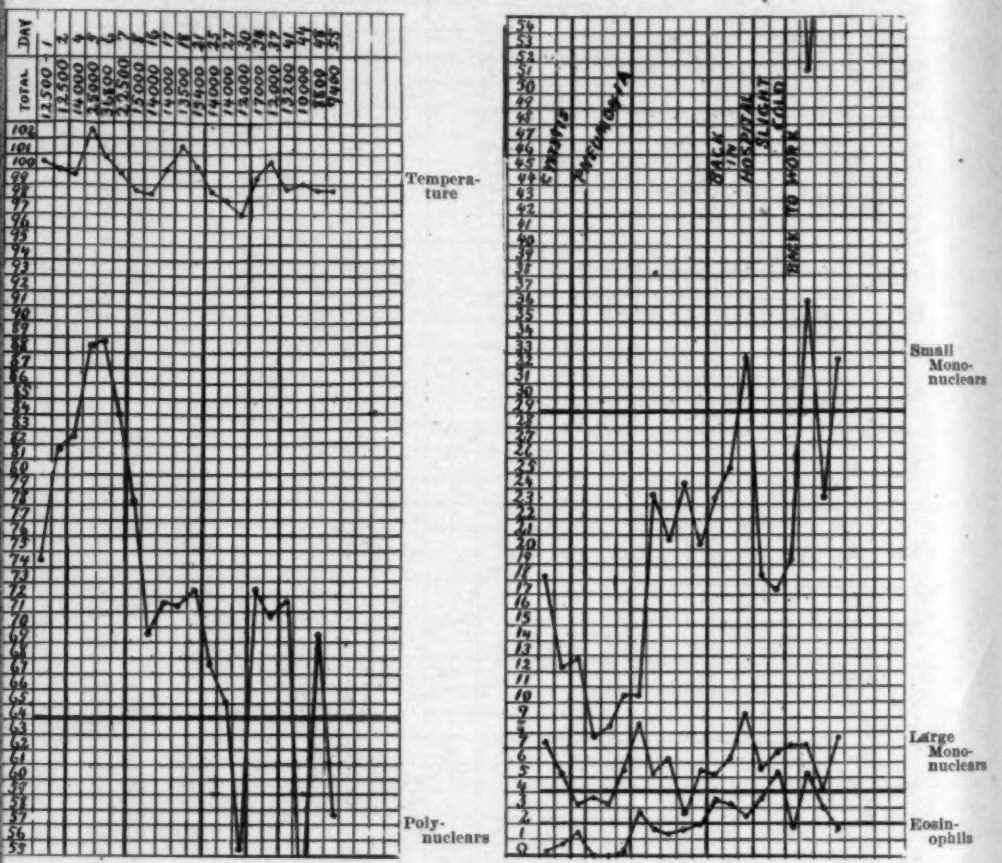


Chart 2.—Leukocyte chart for M. P. Chest injury. Note effect on polynuclears and small mononuclears during cystitis, pneumonia and slight cold. Also total absence of eosinophils during attack of pneumonia. Note also the steady decrease in the total leukocyte count and the convergence of the reciprocal curves of the polynuclears and small mononuclears as patient recovers.

Experience and care are essential in making an accurate leukocytic picture. As long as our blood examinations are left to untrained assistants, so long will our results be unsatisfactory.

1552 West Fifty-Ninth Street.

DISCUSSION

Dr. C. A. Stevens: Mr. President and Gentlemen:—Following Dr. McDonald's very excellent paper, I will speak very briefly on first, why we opened the chest in this case and second the technique of the operation.

I first saw Mr. Powers about 1 o'clock a. m., as Dr. McDonald has described him, unable to lie down, suffering considerable pain, pale and with very jerky, irregular respiration. The *x*-ray pictures already taken by Dr. Waska showed the trouble, as Dr. McDonald had suspected, to be a knife blade, lying in the fold between the diaphragm and the anterior chest wall, the edge of the blade turned down and the point directed toward the pericardium and about one-half inch from same. A physical examination showed a pneumothorax with dullness at the base of the pleural cavity behind. In deciding how to treat this case it was necessary to consider the dangers of, first, operating and, second, of not operating.

The dangers of operating were, as you all know, shock and collapse, especially the latter, immediate death often resulting upon opening the chest wall.

The dangers of not operating were first, sepsis, which could readily be taken care of later and second, the immediate danger of a severe spasm of coughing forcing the knife blade into the pericardium or heart, or even through the diaphragm into the abdominal cavity with possible damage to some of the contained viscera.

After much discussion we decided to operate at once. The patient was taken to the operating room, anesthetized with ether and prepared in the usual way. An incision about five inches long was made in the fifth intercostal space beginning at the junction of the ribs with the costal cartilage and passing through the original wound. From the inner end of this incision we cut across the sixth and seventh ribs then turned at right angles and continued the incision outward in the seventh interspace an equal distance of the first cut, thus making a U-shaped flap. The sixth and seventh ribs were cut across and the other part of the incision carried through into the pleural cavity. An osteo-plastic was thus formed and when raised we found we could get into the pleural cavity without fracturing the ribs the second time.

A blood clot, close to one pint of blood, was wiped out of the pleural cavity and search begun for the knife blade. This was not easily found, we searching the entire cavity even palpating the heart and lung before we finally located the object pretty well back, deep in the crease between the diaphragm and chest wall. It had undoubtedly dropped back while we had been opening the chest wall and wiping out the blood clots.

The wound in the lung was examined and seemed to have ceased bleeding. We replaced the flap, sutured the pleura and intercostal muscles with a row of interrupted catgut sutures. The subcutaneous tissues were then sutured with a continuous catgut suture and the skin closed with a silkworm gut. A sterile pad was placed over the wound and the chest strapped with adhesive as for a fracture of the ribs. The skin sutures were removed on the tenth day with primary union. A small amount of morphin controlled the pain, the patient going on to recovery as described by Dr. McDonald.

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THE TECHNIC OF SURGERY OF THE GALL-BLADDER AND THE BILE DUCTS *

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Anatomy.—The gall-bladder or reservoir for the bile is pyriform in shape and is confined in a slight depression on the under surface of the right lobe of the liver. It is about 4 inches long and 1 inch wide, and is capable of holding about 1.5 ounces of fluid. Its broadest part projects beyond the anterior margin of the liver and is maintained in its position by the peritoneum, which usually is continued over it from the liver, but it may occasionally completely invest it so as to form a kind of a mesentery. It is divided into a fundus, a body and a neck. The fundus is its broadest part and usually projects a little beyond the front border of the liver; from this it gradually narrows forming the body, and this again further contracts to form the neck which makes a bend downward, curving on itself like the letter "S." The neck terminates in a duct called the cystic duct, which, after a course of about one inch, joins the hepatic duct at an acute angle. The common duct thus formed, called the ductus communis choledochus, is about three inches long and of the size of a goose quill. It opens into the inner side of the back of the descending part of the duodenum after running obliquely through the coats of the bowel. The common duct lies in close relationship to important structure, namely, the portal vein and hepatic artery — the hepatic artery being to the left, and the portal vein between the two, and on a plane posterior. Normally, the gall-bladder is of a greenish color, of moderate thickness and contains a weak muscular coat. It is important to bear in mind that in the cystic duct, the mucous membrane is arranged in folds which pursue a slightly spiral course known as the spiral valve or valve of Heister. When speaking of exploring the ducts, I will touch on this point.

Operation.—The position of the patient is important. A roller or a pillow should be placed under the patient's back. The modern operating tables have a device which can be raised at will, and so a lordosis is produced making the field of operation more accessible.

The Incision.—The incision for gall-bladder exploration should be wide. I don't mean by that a post-mortem incision, but an aperture large enough to admit of easy access to the structure and a good clear view. Small incisions, just large enough, as were in vogue in years gone by, to anchor the gall-bladder for draining, are absolutely unwarranted in these days.

Types of Incisions.—A. The oblique incision (Illustration 2 Bier). It begins just below the ensiform process and runs a half finger's breadth below the costal border to the lateral edge of the right rectus. At this point, nerve and artery come into view, which should be saved. The

* Read at the Jan. 7, 1913, meeting of the Englewood Branch, Chicago Medical Society

abdominal muscles are split in the direction of their fibers, but the rectus is cut across. This incision gives one the maximum amount of room, allows the liver to be tipped upward by an assistant, bringing the gall-bladder and ducts into view. This extensive incision is only to be recommended in very fat people, or where the previous history indicates extensive changes.

B. The Bayonet Incision (Illustration 3). A longitudinal incision in the median line, then at right angles through the rectus to its outer border, then downward along the outer rectus border. This also gives a good exposure.

C. The straight longitudinal incision through the rectus muscle. After incision of the muscles, the peritoneum is split in the usual manner and the border of the liver comes into view, often covered by adhesions which are cut between two forceps and tied with catgut. We now look for the gall-bladder which may be covered by adhesions, or by the duodenum, colon or stomach, making it difficult to locate the organ. I warn you in such cases to work carefully and slowly until the gall-bladder is clearly and unmistakedly before you. Many fecal fistulae have been produced at this stage by careless tearing up of adhesions or even opening the gut which had been supposed to be the gall-bladder. The round ligament may be in your way; if so, it may be cut between two ligatures and united after completing the operation.

Most important now, is the thorough protection of the abdominal cavity against infectious material. One lap sponge covers the hepatic flexure and the omentum; and a second, the duodenum and stomach medially; a third lies between stomach and liver above.

When the gall-bladder has thus been carefully freed and the abdomen protected, it is palpated along the entire tract by passing the finger along the viscus downward, feeling as the finger passes along the ducts for stones which may be present even when the history has been entirely negative.

Our method of dealing with the gall-bladder may be: First, incision, removal of stones and closure; second, incision with drainage, cystostomy; third, extirpation of the gall-bladder, cystectomy.

1. The incision with closure is indicated only in a healthy gall-bladder, the walls not inflamed and containing normal-appearing bile. If you have a gall-bladder before you, which appears normal in color, its walls not thickened, no adhesions and on palpating the viscus you find no stones, aspirate the viscus, and if the bile appears normal, one would be justified in leaving it alone. In all probability a mistake has been made in diagnosis. If in doubt at all as to the presence of stones, incise it, remove any stones present and close the gall-bladder with a double row of sutures, the first row always of absorbable material and preferably not puncturing the mucous membrane. The second row catches the serous coats and may be absorbable or non-absorbable material, as one chooses. Remember this ideal cystostomy is indicated only in the absence of any inflammatory changes. If at all in doubt — drain.

Naunyn in his excellent articles has shown conclusively that pain, fever, icterus, swelling of the liver and gall-bladder are not due to stone impaction alone. Cholangitis is the essential cause of all these manifestations, due to the presence of microorganisms in the bile, most commonly the colon bacillus which is ordinarily present in the duodenal portion of the common duct of healthy individuals. As long as the stream suffers no obstruction to its passage, this organism remains harmless because its accumulation is kept down by the constant flushing and removal into the gut. Whenever stagnation occurs for a while, a dangerous accumulation of the bacilli takes place and this leads to bacterial infection of the bile. It is not necessary that the bile stream should be completely obstructed; any degree of stagnation may be sufficient, as the gall-bladder is not a duct, but a receptacle in which stagnation is practically a constant condition. This part of the biliary tract is the starting point and most frequent seat of bile infection. You will see from this short discourse that cholecystostomy alone is indicated only in these early cases of infection without extensive changes in the bile passages, and then we must be absolutely sure that all obstruction is relieved, be it stone or adhesion. On the other hand, in long-standing cases, where the gall-bladder and ducts are the seat of extensive changes from infection caused either from the blood-stream or from the bowel tract or impacted stone, drainage should be carried into the hepatic ducts or common ducts. Imagine a gall-bladder filled with infected bile, its walls thickened and mucous membrane eroded and ulcerated, and this infection extended throughout the larger ramification of the hepatic duct. What permanent benefit can we obtain from draining the gall-bladder while the other bile tracts are left undrained? I am certain very little, although a temporary relief might be had. I believe that a good many recurrences, excluding those where stones were overlooked, are due to insufficient drainage. Of course, no hard and fast rules can be given as to just what cases need drainage of the hepatic ducts. One must be guided by the length of time its infection has probably existed as measured by the history, condition of the patient, the appearance of the gall-bladder and ducts. In some cases of severe, septic cholecystitis, simple drainage may be a preliminary procedure to tide the patient over the brunt of the affection to be followed by more radical means when the inflammatory process has subsided.

Let us consider the technic of:

1. Cholecystostomy with drainage of gall-bladder only. Incision with drainage-cystostomy. See that the gall-bladder is freed from all adhesions and that you have protected the abdominal cavity against contamination. If distended aspirate with a trocar, the assistant steadying the gall-bladder with two artery forceps or two silk sutures passed through the coats of the gall-bladder. The infected contents are caught in a sterile vessel, and when the flow stops, the incision is enlarged sufficient to explore the viscus. Now pass a sponge on a stick into the cavity to take up any remaining fluid, and remove any stones present. Then

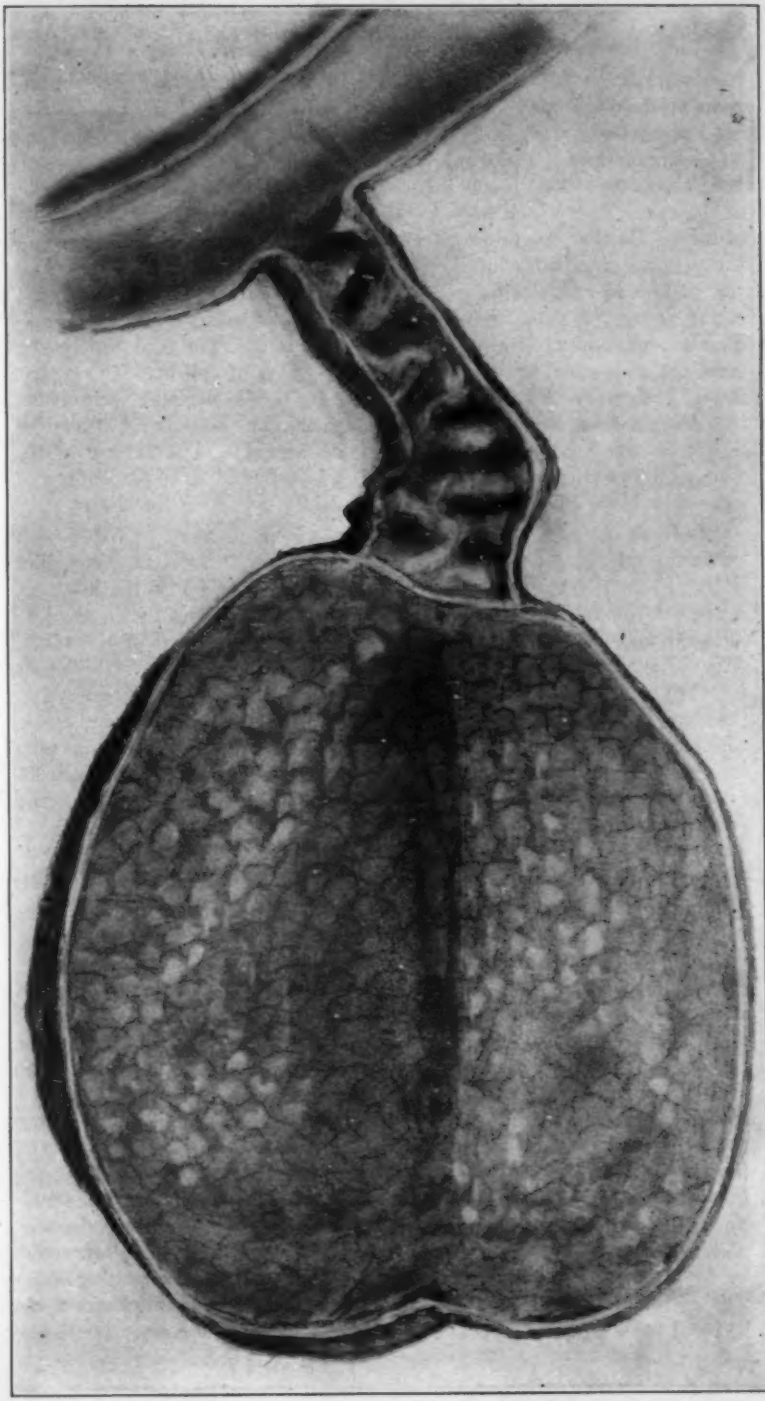

Fig. 1.—Gall-bladder filled with gall-stones. Valve-like arrangement of mucous membrane of cystic duct.

pass your finger into the gall-bladder to ascertain whether any concretions are left behind.

The text-books generally advise passing a probe into the cystic duct and common duct to make sure that the canal is patulous, but let me call your attention to the special valve arrangement of the mucous membrane of the cystic duct which prevents the passing of a sound in the majority of cases. So that one must, to repeat, be guided largely by experience or the general appearance of the gall tract. After thorough cleansing of the gall-bladder, a drainage tube is inserted, held in place by a purse string suture; a gauze strip is placed along the under side of the gall-bladder; the viscus is allowed to drop back with the tube protruding from the abdominal wound. In the earlier days of gall-bladder surgery, it was customary to anchor the gall-bladder to the parietal peritoneum, but this should not be done for the reason that the adherent gall-bladder is apt to give troublesome symptoms on account of the pulling of the viscus on the peritoneum. Secondly, it is followed in a percentage of cases by a biliary fistula requiring a secondary operation for closure.

2. Drainage of the hepatic duct. This is more often preceded by a choleystectomy and after the gall-bladder has been incised the cystic duct is incised sufficiently to carry a drainage tube upward into the bile passages. A few catgut sutures are placed in the cut edges of the duct to hold the tube in place and facilitate closure after removal of the tubes. A gauze strip is placed alongside of the wound. Where the gall-bladder is retained, drainage may be had by incising the common duct and inserting a tube, or it may be done by splitting the gall-bladder and cystic duct to the junction of the latter with the hepatic duct and a tube inserted. In this case the opened gall-bladder is packed with gauze to take up any infected material. The gauze packing is removed on the second or third day.

3. Cholecystectomy. Wherever the gall-bladder is so changed in structure as to make its restoration improbable, it should be removed. Complete extirpation may be impossible in the very severe acute infections when the walls are mushy and soft. In these cases we must be content with wide incision, drainage and tamponing. With this exception, extirpation is practically always possible, but may require in old cases very careful dissection and separation of adhesions. 1. The old method of dissecting the mucous membrane. 2. The subperitoneal enucleation. It is the method of choice as it leaves a peritoneal covering over the raw area, preventing adhesions.

The peritoneum binding the gall-bladder to its fossa is incised over the prominent inferior surface of the gall-bladder either in one straight line in the long axis of the gall-bladder from fundus to cystic duct; or, in the form of an elipse, especially where the bladder is large, the two limbs meeting at the fundus and cystic duct. This incision, having passed simply through the serous covering, the peritoneum is separated by blunt dissection from fundus to neck and retracted on either side. The gall-bladder itself is then shelled out by blunt dissection from its bed and freed to its pedicle keeping strictly within the connective tissue

plane. The pedicle, formed by the cystic duct and vessels, is well isolated and duct and vessels tied separately wherever possible. The divided peri-

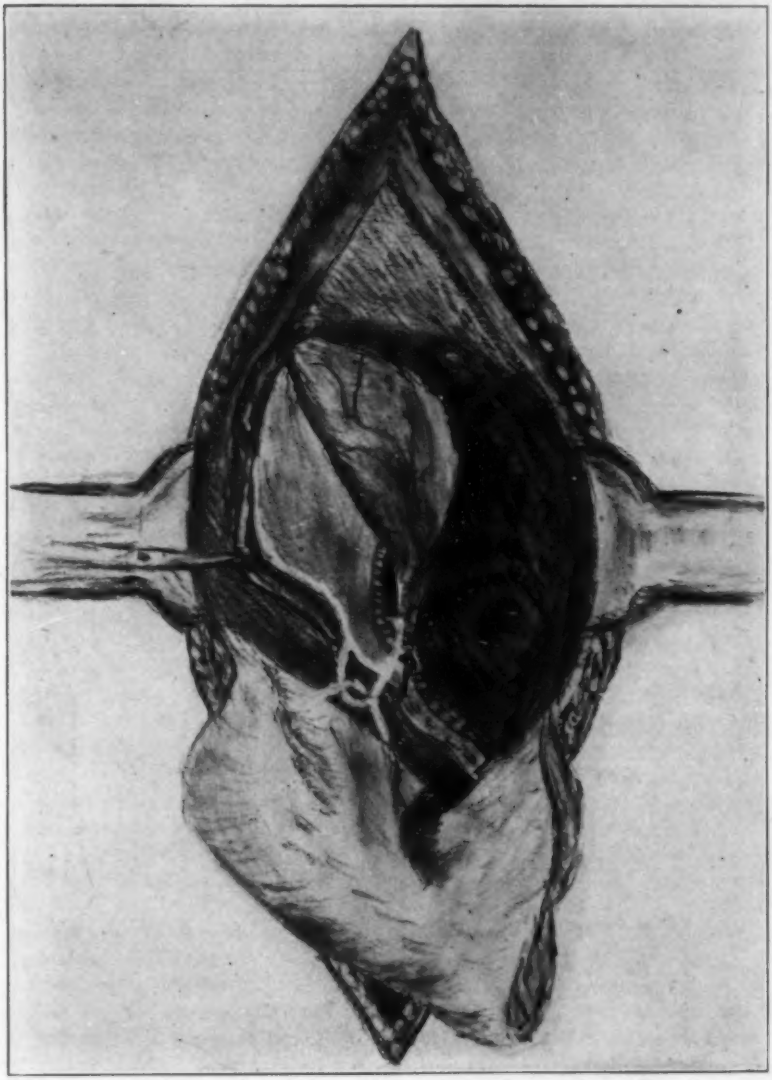

Fig. 2.—Cholecystectomy. Dissection of gall-bladder from peritoneum.

toneum is now sutured with catgut. I prefer to place a small tube in the peritoneal pouch to take care of any oozing; it remains for forty-eight hours. The cystic duct may be tied or clamped at the neck of the

gall-bladder first, and the organ removed from behind, forward. As mentioned before, this is the ideal way to do a cholecystectomy, but the separation of the peritoneum is not always so easy, and in old standing cases, with a shrunken gall-bladder, it is apt to be impossible to separate

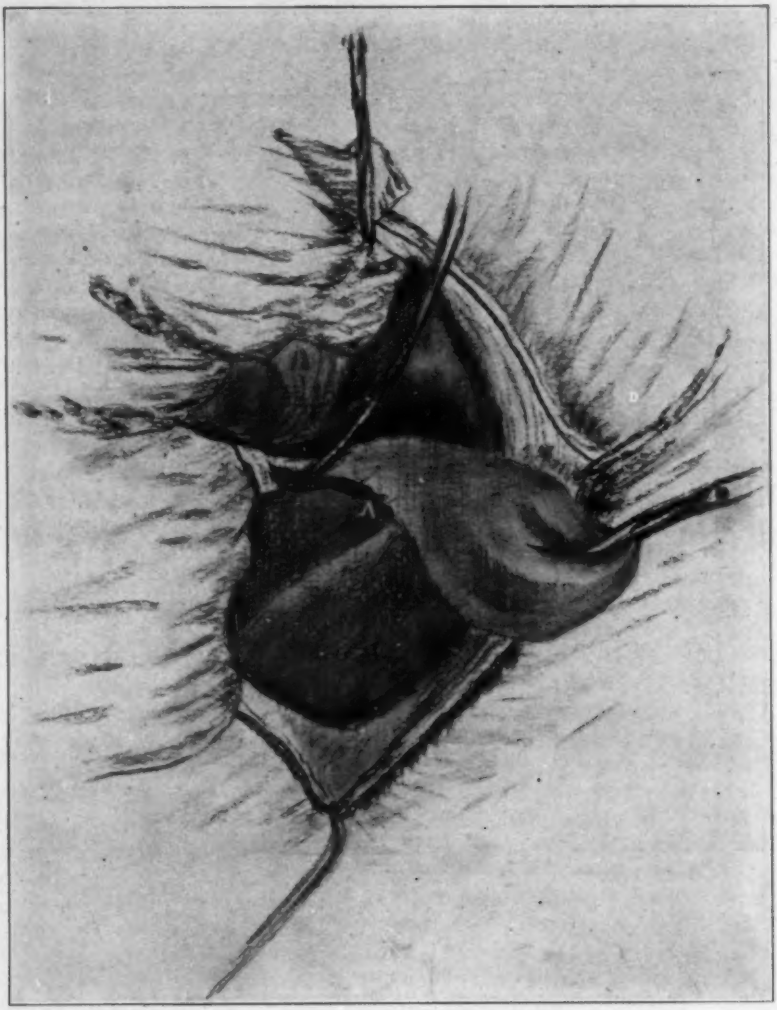

Fig. 3.—Cholecystectomy. Ready to ligate cystic duct.

the peritoneum. The same is true in severe acute infections with pericholecystitis. In these cases the complete extirpation including the serous covering has to be done.

The gall-bladder is separated from the liver by a fascia-like membrane. By incision and dissection of the membrane, the gall-bladder is freed from the liver. A small strip of serous covering on either side of the fundus of the gall-bladder is dissected off along with this membrane so that a peritoneal covering may be had for covering the raw surface of the liver. The bleeding from the liver is controlled by compresses. We proceed downward with this dissection until near the neck of the gall-bladder a mesentery-like reduplication of the peritoneum is met, containing the cystic artery. The vessel is isolated, tied and cut, leaving the gall-bladder hanging by the cystic duct. This is cut between two ligatures, the stump cauterized if no further investigation of the bile tract is needed, and the stump covered with peritoneum. Drainage as before.

Removal of Stones.—A. Let me repeat that when the gall-bladder shows pathologic changes with or without stones, a careful examination of the entire gall tract is imperative. To do this, the liver and gall-bladder are rotated in such a way as to stretch and make prominent the common duct and bring it nearer to the surface. After tracing down the cystic duct, expose the anterior surface of the hepato-duodenal ligament down to the duodenum, demonstrate the free border of ligament to the right, insert the index finger of the left hand into the foramen of Winslow and left thumb on the anterior surface of this ligament, and follow this structure downward to the duodenum, having between the fingers the common duct to the right, the hepatic artery to the left, and the portal vein between the two and on a plane posterior. Large stones can be felt easily, but small ones may escape detection by mere external palpation, especially when adhesions are present. If a stone is felt in the cystic duct, it may be extracted by means of long blunt gall-stone forceps, or spoons. Or, it may be dislodged by stroking externally until it slides into the gall-bladder. Irrigation may be of aid if the other means have failed. Finally, if the stone cannot be dislodged, I would not hesitate to incise the cystic duct, extract the stone and close the opening. Wherever a stone may be lodged, don't crush it, as small concretions left behind in this way will form a nucleus for new stones and consequent recurrences.

The common duct may offer considerable difficulties for examination. Situated deep, often surrounded or distorted by adhesions, it may seem difficult and sometimes impossible to isolate, especially if a lot of adhesions have to be separated and the field is covered with blood. Work slowly, carefully, and if you are not sure of the common duct, insert a fine needle into what you believe ought to be the common duct and examine the fluid so obtained. When sure of your duct and it is distended and a stone can be felt, don't palpate, but first, after careful protection of the abdominal cavity, incise the duct and catch the abundant secretion with lap sponges, and then when the walls have collapsed on the stone, it can be extracted with ease. Gerster cites a case where a stone was felt by him in the duodenal end of the dilated common duct. The house surgeon's request to palpate the stone was granted, and when he proceeded to explore the interior of the duct, the stone was gone and

finally was located in that branch of the hepatic duct which communicated with the right lobe of the liver. The mechanism of the displacement is explained as follows: Compression of the distended duct necessarily means displacement of a considerable volume of bile to the right and left of the compressing finger, causing an additional degree of distention of the walls of the duct except at the point of compression. The displaced liquid thus set in motion generates two current; one on each side of the compressed segment. If the stone happened to slip out from under the pressing finger simultaneously with the displacement of the bile, the fluid will carry the stone, which is of low specific gravity, either toward the papilla or into the overdilated hepatic duct or its branches. As soon as the finger is removed, a return wave will start from each side towards the place of temporary compression. The place of overdistention will become less, the walls of the hepatic duct will collapse to a degree below the mean of tension, and the stone may be caught and retained. Hence an evident distention of the duct should be first relieved by incision; the rush of the escaping bile will then be apt to carry all movable stones toward the vent thus opened; or, at any rate, prevent their backward escape into the hepatic ducts.

Where the common duct is distended sufficiently exploration is the surest means of detecting stones. The sound is not so certain, as it may glide along soft concretions unnoticed to the sense of touch. Repeated irrigations into the retroduodenal portion is a valuable procedure when stones cannot otherwise be reached. When the common duct is small and narrow and contains small concretions which cannot satisfactorily be located externally, a hollow sound is best passed through an incision in the cystic duct. The common duct is incised on it. The duct may be incised along its entire length to the duodenum. All concretions are carefully removed with spoons and a sound passed into the duodenum to make sure of no obstruction at the papilla of Vater. To gain access to the retroduodenal part of the common duct, the peritoneum is incised a finger's breadth from the duodenum; this frees the latter so that it can be turned over and to the median line, exposing on its posterior surface the common duct as it is almost to enter the bowel. If pancreatic structure overlaps, it is incised, should an exploration be deemed necessary.

The most difficult step is to extract stones from the papilla of Vater. If impossible to loosen the stone from the choledochus incision, duodenotomy with incision of the papilla from the interior of the bowel is the only means. After extraction the choledochus and the duodenal mucous membrane are closed with suture, followed by a double row of sutures of the duodenum.

The hepatic duct is examined as far upward as it will permit with stone-forceps, spoon, or if sufficiently divided, with the finger. When stones are felt, but cannot be dislodged by any of these means, irrigation with a catheter is of much value.

The final step varies with different operators. Some men close the common duct entirely, leading a gauze drain out from the line of suture. Others insert a drain-tube surrounding it with gauze tampons. The

latter method seems to me the only one to insure good drainage and cleansing of the tract. The tube having lateral openings is passed along the duct a varying distance and the duct is united over it with catgut. Gauze strips are placed around the tube to take up any leakage. The gauze strips are gradually removed after the second or third day, and the tube remains until the bile regains its normal color. Whether the tube is placed upward toward the liver or down, is perhaps immaterial, or if you like, a "T" drain can be inserted.

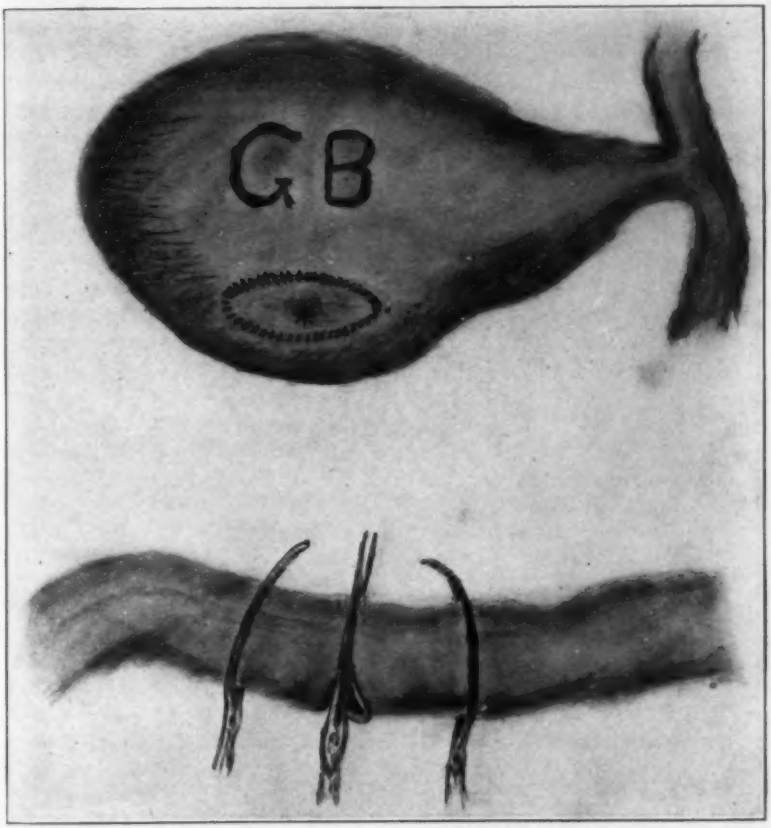

Fig. 4.—Cholecystenterostomy. First step.

Cholecystenterostomy (Illustration Bier, pages 722 and 723).—Cholecystenterostomy is indicated in obstruction of the bile tract by tumors which will not permit of radical removal, as malignant growths, benignant tumors, and chronic pancreatitis occluding the common duct. The technic is as follows:

The distended gall-bladder is emptied by aspiration and the fundus grasped and steadied with forceps. The transverse colon is held upward and a loop of small bowel about 20 or 30 cm. below the duodenojejunal junction is brought up either in front of the hepatic flexure or behind it through an incision in the mesocolon, preferably in front. A small part of the small bowel is clamped in forceps as in an enterostomy, held up

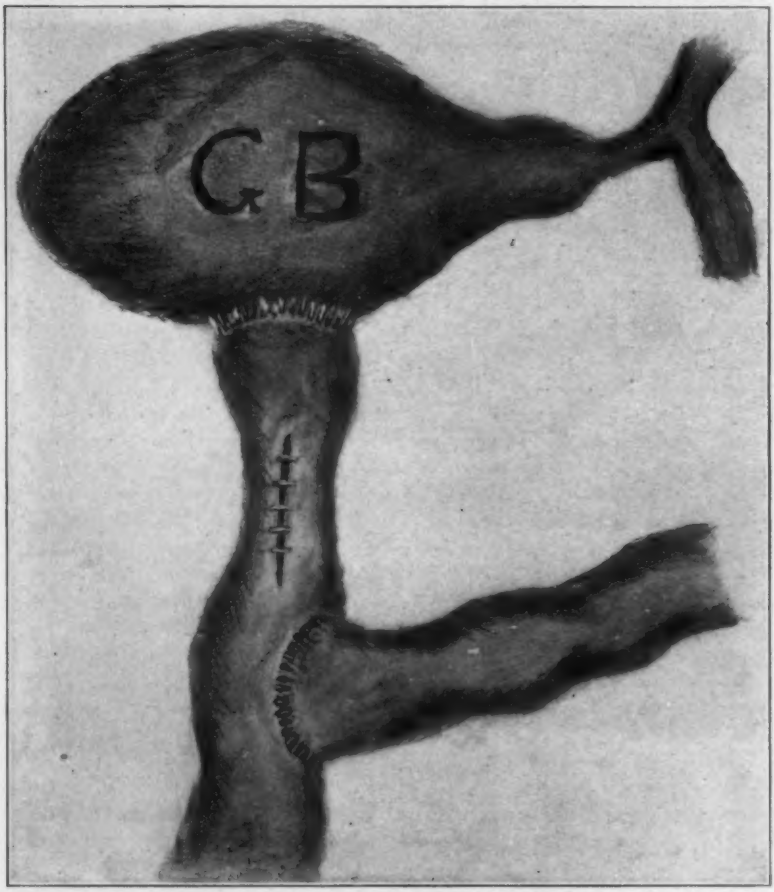

Fig. 5.—Cholecystenterostomy. Completed.

against the gall-bladder and united in the usual manner, first making a posterior serous layer of suture, followed by incision of gall-bladder and intestine and completion of the anastomosis by a double row of sutures. This method is objectionable because of the possibility of intestinal contents flowing into the gall-bladder, and to overcome this, Montprofit has modified the method by dividing the small intestines between

two clamps and uniting the distal end to the gall-bladder while the proximal end is implanted in the side of the distal end 5 or 6 cm. below the point of anastomosis. In like manner an anastomosis may be made with the stomach. The anastomosis may also be made with the aid of a Murphy button.

The making of a new common duct by means of an ordinary rubber tube has been done successfully in dogs and man by Jenkel and Wilms.

Enderlen and Justi covered defects in the gall-bladder with omentum and found that it heals readily, and an epithelial lining on its inner surface gradually lines this covering. Liebold covered a defect of the common duct with a pedicle flap from the gall-bladder with good results.

Wilms, in the *Ztsch. f. Chir.*, cxix, 345, gives an extensive article on experimental work on dogs and cats where the common duct was excised and an attempt made to form a new duct by inserting a drainage tube between the hepatic duct and duodenum. The idea is to form an artificial canal for the time being, until a new canal has been formed by granulation tissue around the drainage tube. In due time the drainage tube is discharged into the bowel and is expelled.

In the September number of the same journal, Brandt cites four cases in which an attempt was made to form a new duct. For those especially interested, I refer them to this exhaustive article. The indications for the operation were: In Case 1, occlusion of the common duct from chronic indurative pancreatitis; in Cases 2 to 4, obliteration of the common duct from dense adhesions caused by former operations. He comes to the following conclusions:

1. The tube must not extend too far into the lumen of the duodenum, as the peristaltic action may draw the tube in to the lumen before sufficient granulations have formed to build a new canal.

2. The tube must be surrounded as much as possible with omental tissue.

He says that the formation of an artificial common duct is indicated, where, because of extensive adhesions or a preceding cholecystectomy, a cholecystenterostomy is impossible.

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Dr. Eggert died March 6, 1913, after an illness of only five days.

THE RATIONALE OF SALVARSAN TREATMENT OF SYPHILIS *

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The salvarsan treatment of syphilis has aroused a discussion to an extent unparalleled in the history of medicine. After the first enthusiasm over the discovery of Ehrlich, the field soon became divided into

*Read at the meeting of the Chicago Medical Society, March 26, 1913.

two camps: the enthusiasts and the bitter critics. Medical papers all over the world were filled with numerous instances, on the one hand, of the marvelous effects of the new remedy, on the other hand of disastrous results. On one side it was lauded as a panacea, as a magic remedy, which is going to rid the race of a dreaded disease; on the other, it was condemned as a poison. Some saw in it the only remedy to prevent the dreaded sequels of syphilis-tabes and general paresis; others said salvarsan will make tabetics. Wechselman, in the Rudolph Virchow Krankenhaus in Berlin, on a material of 300 patients a day, uses salvarsan to the exclusion of mercury, and his colleague Bushke, in the other department of the same hospital uses mercury and taboos salvarsan.

Even points distantly connected with the treatment became a matter of bitter controversy: the Wassermann reaction was magnified by some into an indisputable proof of the superiority of salvarsan; by others it was belittled as having no bearing on the results of treatment.

Even the importance of syphilis as a disease became a matter of controversy. Some magnified it into the worse scourge of humanity demanding the most heroic measures for its eradication; others again looked at it more calmly and said syphilis is by far not as bad as represented, and does not at all justify such a dangerous and drastic measure as, they say, salvarsan is. And to this difference of opinion was added a tone of bitter animosity, almost of malice. Note the tone in which Gaucher speaks in the last issue of the French *Annals de Dermatology*, of the money-makers who laud salvarsan and of the people who choose to follow the lead of German science. And in Germany itself the personal attacks on Wechselman and the other exponents of the salvarsan therapy are far from dignified.

And yet the question of the significance of syphilis as a disease is very important indeed, especially of the so-called latency of syphilis, where we find only a positive Wassermann reaction without any other symptoms of the disease. Do these cases indicate the necessity of treatment and shall we resort to such a heroic remedy as salvarsan?

I do not believe that any one of us considers syphilis as an irrelevant disease. Blaschko, in Berlin, has shown from life insurance statistics that 33 per cent. of syphilitics die of syphilis, and that in 50 per cent. of these cases death was caused by syphilis of a vital organ.

Lesser, Pick and Proskauer, also in Berlin, have found in autopsies, syphilis of internal organs in patients who had no other symptoms than a Wassermann reaction. That the Wassermann reaction gives a true diagnosis in latent syphilis was shown by a large number of autopsies in the Augusta Victoria Hospital in Schoenberg-Berlin made on patients who gave no history of syphilis and had no sign of the disease, but whose blood showed a positive Wassermann reaction.

The Wassermann reaction *is* a sign of syphilis, not only indirectly showing the existence of immune bodies in the blood, but (as we will see later) a direct sign of the continuation of the syphilitic process in the organism.

There is no doubt now in my mind that a patient with a positive Wassermann ought to be treated and treated until the Wassermann turns negative and *stays* negative.

Shall we treat him with salvarsan? I come now to the pros and cons of salvarsan treatment. What speaks against salvarsan? What makes it indispensable?

What brought salvarsan into disrepute?

1. *The Neurorecidives.*—It is a fact that neurorecidives or syphilis of the nerves, cerebral as well as peripheral in the form of paralysis and paresis of the facialis, opticus and acusticus, etc., and also meningeal syphilis, leading to epileptic attacks, have been seen in comparatively large numbers since the use of salvarsan. The experience with atoxyl, an arsenic preparation which led to blindness and deafness, was yet so fresh in the memory of the profession, that salvarsan was suspected as a neurotropic poison.

But it is also a fact that since salvarsan is used in larger and more efficient doses the neurorecidives have been observed less frequently. If you examine the disastrous reports of salvarsan you will notice that they came in the majority of cases either from authors openly adverse to salvarsan, like Finger in Vienna, or from physicians who were cautious and still on guard to learn what salvarsan will do, who formed their opinions from the first failures they encountered. Even they have reported that the neurorecidives were cured by further administration of larger doses of salvarsan. Now, if a larger dose of salvarsan will cure a neurorecidive, it surely cannot be the cause of the neurorecidive. In clinics where I have seen salvarsan used intensively and systematically, like Wechselman's in Berlin, or Gennerich's in Kiel, accidents have not happened or have happened at first when they did not have the experience they have now. Gennerich has encountered only three neurorecidives in 600 cases, and only one death which he attributes to an extraneous cause.

To understand the modus operandi of a neurorecidive and its relation to salvarsan, we must analyze and interpret briefly the experience of the last years.

Soon after the discovery of the spirocheta, when the method of early, so-called, abortive treatment of syphilis forced itself on the medical mind, the observation was made that after one thorough course of mercurial treatment the secondaries, though retarded, appeared after some three to six months in a somewhat violent form, especially did they notice circumscribed syphilitic lesions, even tertiary lesions appearing in the early secondary period, that is three to six months after the appearance of the primary lesion, in a somewhat severe form, the more severe the more thorough was the abortive mercurial treatment given. A complete sterilization of the patients with avoidance of recidives was gained only by repeated courses of intensive mercurial treatment; for instance, ten to 15 injections of 40 per cent. calomel suspension per course, given in two to three courses, in intervals of not more than six weeks. These occurrences of recidives have led to a protest against the abortive treat-

ment, claiming that it breaks into the normal course of the disease and that it provokes malignancy and tertiarism.

What is the significance of these phenomena? Apparently this: That one course of mercurial treatment is not sufficient to destroy all the spirochetes of the body. There is obviously a limit to the absorption of mercury by the organism. In the first days of the infection, when we can suppose that the spirochetes are still circulating in the blood only and have not yet passed through the capillaries into the tissues, we may expect their complete destruction by having mercury circulate in the blood, but as soon as the spirochetes have passed through the capillaries and have localized perivascular or deeper still into the tissue, mercury will not be able any more to reach them, at least not in a short time. Mercury coagulates the albumin of the cell and when the cell is altered in its function it will absorb no more, but will prevent diffusion and will not permit the mercury to penetrate into the deeper tissue till in time the metabolism of the cell has improved. This is the reason why two to three courses of treatment are necessary in primary cases to produce complete sterilization. In secondary cases, where the spirochetes are already disseminated in the deeper tissues, it will take still longer to produce a deep penetration and a cure.

Why does an insufficient, though thorough abortive treatment of a primary case produce malignancy of symptoms? Because of the limitation set by the tissue cells to the diffusion of mercury; it will permit an incomplete sterilization of the blood, not touching the deeper tissues where the spirochetes have localized; here foci are formed, so to speak, multiple chancres which are the source of a subsequent new and more violent invasion of the body.

The recidives are, as you see, not peculiar to salvarsan only. They are produced by mercury also if the treatment was sufficient to sterilize the periphery—the blood—and not enough to destroy the spirochetes in the deeper foci of the tissues. That was the reason why a Wassermann reaction in the recidives was observed at times to be negative while there were unmistakable lesions on the skin; a phenomenon which was not understood at that time and which was thought to discredit the Wassermann reaction.

Why does not mercury produce neurorecidives? Because the penetration of mercury is not deep enough to sterilize the entire body and leave only the least approachable parts untouched, the single foci. These least approachable parts are the nerve tissues within the cerebrospinal canal. Covered by tough, fibrous, non-diffusing membranes, the dura and arachnoidea, and having comparatively little vascular communication with the outside, mercury has less chance to circulate within the cerebrospinal canal and through the sheaths of the cerebral nerves than it has in all outside tissues. If mercury will therefore succeed in penetrating all the deeper tissues of the body (and it does so only after thorough and prolonged treatment), leaving only the cerebrospinal canal, into which it can apparently never penetrate, untouched, it will then indeed have sterilized the entire outside body and will have left the spirochetes within the

cerebrospinal canal untouched: it will then have produced nerve-syphilis, the neurorecidive. That mercury does act that way, we have the testimony of the greatest authority on syphilis, of Fournier, who in his book on late secondaries says that tertiarism is observed in patients who have had insufficient treatment. We can explain it now, because the mercury could not penetrate into all the tissues and had left circumscribed foci of spirochetes which through long action on these circumscribed localities produce obliteration of blood-vessels, obstruction of circulation between these localities and their surroundings, produce in other words demarkation of the syphilitic process, the circumscribed gumma. Again Fournier says, that tabes is observed in patients who had thorough and prolonged treatment; the more thorough the treatment the more chances for the patient to become tabetic. This phenomenon too we can explain now by the fact that the thorough saturation of the body with mercury has succeeded in sterilizing all the tissues with the exception of the spinal canal and that here the spirochetes could without interference exert their action on the spinal cord.

Nerve syphilis is, as you see, not new. It is and it always was observed in mercurial treatment if the conditions were favorable; that is, if all the tissues were sterilized except those imbedded in the dura and arachnoidea and in the nerve-sheaths.

Still nerve syphilis or neurorecidives were not observed so frequently in mercury treatment as now after salvarsan treatment. Why?

The spirochetes have a tendency to rapid expansion. In the beginning, at the place of inoculation, they produce a reactive inflammation, the primary sore, with infiltration, edema and inflammatory exudation; but as soon as they have spread and invaded the entire body the local reaction ceases and the primary sore flattens down and disappears. The same holds good in every single isolated focus of spirochete accumulation, in every so-called monosyphilid. It acts like a primary sore.

Now mercury has not the power of sterilizing the entire body and of leaving only one isolated single place of infection. There are always many foci, many centers left, though perhaps in latent form. The single focus, even if localized in the nerve tissues, cannot have the strong reactive power that the chancre has, because the expansive power is detracted by the other foci which are coexistent, and which mercury was not able to eradicate. It is different with salvarsan. Its superior spirochetacide powers are beyond doubt. We can see the spirochetes disappearing from blood and lesions after only one injection, which we have never seen accomplished by mercury. In sterilizing the blood so rapidly and deeply, though insufficiently, salvarsan will after one or two injections destroy the spirochetes where the blood easily circulates, in the capillaries and even the deeper tissues, but will not be able to penetrate into the cerebrospinal canal, where diffusion is obstructed. The result will be that in these canals, especially at the narrow bone openings, foci of spirochetes will be left, and the more efficient the action of salvarsan was, the more it has sterilized the peripheral blood, the more these foci will assume the character of primary sores; that is, they will produce a

severe local inflammatory reaction, and either by pressure on the nerve or by direct alteration of the nerve tissue, will they produce paresis or paralysis of the affected nerve. Hence the frequency of a neurorecidive after strong but insufficient salvarsan treatment. A direct illustration of this action of salvarsan was observed in the Marine Hospital in Kiel. The patient infected himself the last of May. June 12 he received in New York an abortive treatment of a single intravenous salvarsan injection. The chancre disappeared rapidly. Scarcely eight weeks later, August 7, he awoke with a left-sided facial paralysis after a preliminary headache of three days. October 3 he came to the marine hospital in Kiel, with a complete paralysis of the facial nerve with lagophthalmos and a recent general macular exanthem (a roseola), which had existed ten days. He received seven intravenous injections of 0.5 salvarsan each in intervals of about five days, and from October 5 to November 30, fourteen intermuscular injections of calomel. His Wassermann reaction acted as in a primary case, it remained positive from October 3 to October 30, and was negative from November 5 to December 8, when he was discharged clinically cured. Here we see an insufficient abortive treatment in the very early stage, two to three weeks after infection; eight weeks after the salvarsan injection, sudden facial paralysis after some slight meningeal symptoms; six and a half weeks after, appearance of a roseola with a positive Wassermann reaction; the focus left at the basis of the skull had acted absolutely like a fresh chancre.

2. The second reason for discrediting salvarsan was the large *fatality*. There were too many cases reported in which death occurred as a result of intravenous salvarsan injections. That these deaths were due to arsenic poisoning could not be disputed. But the experience of two years has shown in what conditions salvarsan proves fatal and has taught us to recognize these conditions.

In an address which I heard Wechselman deliver in the Charité in Berlin, he very truly remarked that salvarsan death cases have all been observed to occur under coma, resembling the coma in renal obstruction. Salvarsan is toxic, no doubt, in doses larger than the human organism can tolerate. Arsenic coagulates albumin and when the cell is over-irritated, especially the excretory epithelium, it will become harmed in its function, or the function will cease entirely. Anuria will set in, elimination of salvarsan will become impossible, arsenic will accumulate in the body and produce its toxic and fatal effect on vital centers. Insufficiency of kidney secretion is, therefore, the strongest indication against the use of salvarsan. Nephritis, heart disease and cirrhosis of the liver will call for caution. And since they have become more cautious in the selection of cases, they have not met with any more fatal accidents.

3. By-effects of salvarsan during and after intravenous injections: (a) high temperature; (b) malaise and vomiting; (c) cyanosis; (d) collapse.

To Wechselman belongs the credit of first calling attention to the fact that most of these effects were due not to arsenic, but to the impurities of stale sterilized water which he showed to contain dead saprophytic bac-

teria and which, when introduced into the circulation, produced the chain of symptoms which were wrongly attributed to the salvarsan. The technic of distillation and sterilization of water and instruments, as I have seen it in Berlin and in Kiel, is carried out in such a way, that distilled water is redistilled not later than one hour before injection in a carefully selected distilling apparatus with no possibility of breaking off of rubber or cork; the distilled water is put in chemically pure glass bottles made of so-called Jena-glass free from admixture of lead or other metallic substances, all the pots, cylinders, and Erlenmayer flasks are boiled and rinsed with the redistilled water; the needles and syringes are boiled and rinsed after each individual injection. Since then accidents in the hospitals have never occurred.

Besides these precautions they have learned to individualize their cases and to weigh their doses. Salvarsan, as they have proven, has no organotropic properties and is not more poisonous than mercury when administered in appropriate doses.

That an overdose will become poisonous goes without saying, but this holds good also of mercury. We have all had this experience. The dose of gram 0.6 salvarsan is altogether too large; it can be tolerated only by very strong and healthy individuals. There is a limit to any toxic drug which the blood will carry through the system without harm. If the dose be too large it will coagulate the albumin of the cells of the secretory organs, produce parenchymatous degeneration of the epithelium in the tubuli contorti and cause nephritis or it will cause enteritis and stomatitis. The function of the kidneys may cease completely, the glomeruli become entirely impermeable; anuria will ensue, arsenic will accumulate in the blood and exert its fatal effect on the vital centers. This is in all probability the mechanism of death in these cases.

A dose of gram 0.6 shall be given only in primary cases when the blood-vessels have not suffered yet from the effects of syphilis, where there is no probability yet of syphilitic vascular changes, and where the diffusibility of the drug through the blood-vessels has not yet been altered. In women and weaker males, it shall not exceed gram 0.4 for the first injection and less than that for the succeeding ones, in weak persons the initial dose shall under some circumstances not exceed gram 0.1.

If we will individualize the dose and take precautions in the preparation of the solution and in the technic of injection, accidents will not happen. Every disturbance in the health of the patient, such as diarrhea, dyspepsia, even lack of appetite and fatigue shall put us on our guard; in other words, make your injections under the best possible conditions which shall assure you a rapid and undisturbed absorption and elimination of salvarsan through the system. Watch all the symptoms in the patient after the first dose, such as elevation of temperature, malaise, vomiting, diarrhea or lack of appetite, and arrange time and amount of next dose accordingly.

Neosalvarsan is used little, at least as a routine treatment, in most of the German clinics I have seen. The advantages of the neosalvarsan are

the neutrality of the preparation and its easy solubility; it is a great convenience not to have to go through the trouble of neutralization. Its toxic power is less than that of salvarsan, as is also its effect. It requires more injections, that is a more prolonged treatment, which may produce undesirable cumulative effects. The preparation is besides more easily decomposed than salvarsan, and can occasionally become very toxic.

Besides the symptoms mentioned, there is another reaction which may be observed during infusion of salvarsan and that is sudden cyanosis. It is observed in salvarsan only, rarely in neosalvarsan, usually after repeated injections, after the fifth or the sixth injection, and is therefore regarded as a reaction anaphylactic in nature. The attack usually comes on after the salvarsan has started to flow into the vein, usually after 30 to 50 c.c. of the solution has been introduced. The patient experiences at first some paresthesia in the extremities, followed by a feeling of pressure in the epigastrium or cardiac region, followed by difficulty in respiration and cyanosis, in extreme cases loss of consciousness and collapse.

As soon as you notice this symptom, stop the flow of salvarsan, give heart massage, give oxygen inhalations, make rectal or subcutaneous infusion of physiologic salt solution, in extreme cases vena sectio, in convulsions lumbar puncture, even trephination of the skull.

The Wassermann Reaction.—Its meaning is still not yet quite understood. It has apparently little to do with immune bodies; that is, it is not a specific in a biologic sense between an antigen and an antibody, for we get the reaction with specific as well as non-specific antigens. We see also the reaction often missing in all circumscribed monosyphilitic lesions where antibodies are present; it also appears late in primary infection, usually after five to six weeks, when the system has already been permeated with the virus and antibodies undoubtedly formed; this speaks against the reaction being of a specific character. And yet, as I have mentioned before, it is proven by a sufficient number of post mortems that wherever the reaction was present there was syphilis. It is therefore more plausible to assume that the Wassermann reaction is a ferment process produced by the breaking down of lymphocytes in small cellular syphilitic infiltration or granulation tissue. It seems to appear only after granulation tissue or perivascular infiltration has developed and is breaking down, in primary cases five to six weeks after appearance of the chancre, in later cases after cessation of antisyphilitic treatment. It is, in other words, a biologic process produced by the ferments which were set free by the broken-down lymphocytes. Without regard to their nature, they are called in German "reagins," or better still in English literature "Wassermann bodies."

A negative reaction, therefore, does not indicate the absence of syphilis. It simply tells that at the given moment syphilitic granulation tissue does not break down or their ferments do not come into the circulation. This may be the case in later years in the so-called late latency, when the syphilis itself has been weakened by time so that only a few

granulation cells break down and little reagins are formed, or in early syphilis, when granulation cells are formed, but do not yet break down.

The negative reaction of recent syphilis does, therefore, soon become positive under good antisyphilitic treatment, because the treatment will induce absorption of infiltrations and will set the reagins free. It is different in tertiary lues. Here the syphilitic process has produced such changes in the blood-vessels, endarteritis or thickening of the endothelium, as not to admit any more a free diffusion of metabolic products. The reagins, even if they are formed, and they are surely formed in the broken-down tissue of the gumma, cannot pass any more through the obliterated and changed blood-vessels. The syphilitic lesion necrotises but does not become absorbed, and the blood is therefore free of reagins and gives no Wassermann reaction. Only a vigorous antisyphilitic treatment may improve for a time the vascular structure so as to admit again a diffusion of the reagins and induce again a positive reaction, perhaps for a short time, say for one day only. Gennerich calls it "die positive Schwankung der Reaction"—The positive vacillation of the reaction. One injection of salvarsan is capable of inducing it, that is, to turn a persistent negative reaction in late syphilis into a positive. He calls it a "provocation" injection and argues that it shows the superior qualities of salvarsan.

A positive serum reaction is always a sign of an existing syphilitic process and an indication for treatment.

A negative Wassermann reaction can be prognostically relied on and taken as a sign of the extinction of the disease only in the following conditions:

1. In abortive treatment, that is, in a recent chancre with a negative Wassermann reaction. If the negative Wassermann remains negative fourteen days after starting salvarsan treatment, Gennerich says, basing his deductions on prolonged and systematic control by Wassermann reaction of his hundreds of cases, that from three to four salvarsan injections, in combination with from six to eight calomel injections, will produce a complete and lasting sterilization.

2. If the Wassermann reaction was already positive before starting treatment, six salvarsan with ten calomel injections will be necessary.

3. Recent secondary syphilis, which gains a negative Wassermann after three salvarsan injections given in intervals of four days, can be completely sterilized with six salvarsan and fifteen calomel injections, without running the risk of a neurorecidive. In all other cases repeated courses of treatment (at least two or three) will be necessary.

4. In later syphilis, three to four such courses are required.

5. A negative Wassermann in all latent cases has a prognostic meaning only when preceded by absolutely reliable and intensive repeated courses of antisyphilitic treatment; otherwise he advises making one or even two to three provocatory salvarsan injections, which will turn the negative into a positive reaction. It is in these cases of late latency that salvarsan is triumphant, for according to Gennerich's experience mer-

cury alone never attains a lasting negative reaction in these cases. The "provocation" injection has also its drawback. It sets reagins free, but it also lets loose the spirochetes which may become more virulent in response to the irritation produced and may cause dangerous neurorecidives, if not followed immediately by intensive salvarsan treatment. It will work here the same havoc which insufficient salvarsan treatment will work in abortive treatment of chancres, in producing neurorecidives.

Gennerich uses provocation injections twice: one after the first year, and again at the end of the second year. Both times he makes daily blood-tests for fourteen successive days. If no positive Wassermann appears, he assumes that the patient is forever cured of his syphilis. But this is not enough. Each year in addition to the blood-tests, he makes a lumbar puncture for the examination of the spinal fluid, before he is convinced that the patient is forever cured.

The lumbal punctate is now an important diagnostic and prognostic measure in the treatment of, we may say, all cases of syphilis, especially those which give suspicion of the involvement on the nerve structure. It shall be done by every physician who treats syphilis, and every physician who undertakes the treatment of syphilis shall assign to himself the work of the neurologist as he is now appropriating the work of the syphilologist. If done carefully, the spinal puncture is easy and without danger.

The spinal fluid is then subjected to the following examinations:

1. Determination of the albumin contents after Nissl: 2 c.cm. of spinal fluid are mixed with 1 c.cm. of Esbach's reagent and the precipitated albumin measured in Nissl's albuminometer.

2. Nonne's test. A saturated solution of ammonium sulphate is brought together with equal parts of cerebrospinal fluid in a small test tube. A cloudiness or opalescence must appear not later than three minutes. Depending on the quickness of appearance and the degree of cloudiness we distinguish slight and strong reactions.

3. The counting of the lymphocytes. The spinal fluid is put into the centrifuge for twenty minutes. The sediment is then placed with a capillary pipette on a cover glass. After drying and fixation with methylalcohol, is stained with Giemsa and the lymphocytes counted.

4. The Wassermann reaction is made with the spinal fluid the same way as with blood.

5. The gold-solution reaction. This was only lately discovered by Dr. Lange, an assistant of Wechselman in the Rudolph Virchow Krankenhaus in Berlin. His reaction consists of the following: It was known that albumin decomposes a solution of gold-chlorid. Clear gold-chlorid solution has a purple red color. If he mixes it with normal spinal fluid it does not change, if the fluid contains albumin it will change the color in different gradations from purple-red to red-blue, blue-red, lilac, dark blue, light blue, white-blue, and finally clear watery. According to the degree of change, he distinguishes different degrees of the reaction. This reaction is very sensitive and Lange claims that he always gets his

reaction when Wassermann is negative. What is more, this reaction gives different color changes in tabes and general paresis and Lange claims that he can predict the coming nerve syphilis, and predict also if it will be tabes or paresis, when there are as yet no signs of any nerve tissue involvement.

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CARDIAC ARRHYTHMIA *

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It happens to all of us that we meet cases showing arrhythmia. In some of these cases we have undoubtedly to do with a very serious process, and we lay considerable stress on the irregularity. In others we know from associated conditions that the arrhythmia is of practically no moment. In all cases, however, a disturbance of the heart's rhythm demands a thorough study and a discussion of the methods of analysis of such a case is well worth while.

It is necessary before proceeding to the method of analyzing the individual case to consider briefly the mechanism of the heart's action. The circulatory system begins early in fetal life as a ventral tube, with a contracting portion, that later becomes S-shaped, and still later, by folding on itself, forms the adult heart. The beginning of the contractile portion persists as the part of the right auricle at the point of entrance of the large veins—the so-called sinus venosus—and it is here that contractions begin in the adult heart. There have been propounded two theories of cardiac action, the neurogenic, which supposes that the heart contracts rhythmically in response to nerve stimuli from without, and the myogenic, which considers the impulse to originate in the heart muscle and to be carried by continuity of muscle from one part of the heart to the other. The latter is at present the best working hypothesis, and while there may be an element of doubt as to whether the primary rhythmic stimulus is purely myogenic or whether it originates in ganglionic cells, it at any rate arises in the heart itself independently of outside stimuli, while at the same time it may be influenced by outside control, by the vagi, for example. The impulse is undoubtedly carried from one part of the heart to another by muscular continuity connection between the auricles and ventricles being established through a bundle of fibers in the auricular-ventricular septum, known as the bundle of His. When this bundle is destroyed, continuity is lost and the auricles and ventricles contract at their own rate, the ventricles twenty to thirty, the auricles eighty to ninety, times per minute, the condition being

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known as heart-block. We find then that heart muscle has five functions, namely:

1. Rhythmicity or the power to originate impulses to contract rhythmically.

2. Irritability, or the power to respond to external impulses to contract.

3. Conductivity, or the power of conducting impulses from one part of the heart to the other.

4. Contractility.

5. Tonicity.

To these functions we must add another property of heart muscle, namely, that when it contracts in response to any stimulus it does so to its full extent, and immediately thereafter it enters on a refractory stage of varying length, during which it will not respond to any stimulus, however strong.

Our knowledge of cardiac mechanism has been acquired from many sources. Experimentally in the laboratory many details have been worked out. Thus Erlander, by an ingenious contrivance for gradually destroying the bundle of His in dogs, produced every graduation from an occasional blocked beat up to a complete heart block, and thereby proved the importance of the bundle. Clinically, the polygraph in the hands of James Mackenzie and others has added a wealth of detail. This is an instrument for recording simultaneously the venous pulse in the neck and either the radial, apex or carotid for comparison. The venous pulse has been known and recognized for many years. We are all familiar with the positive or systolic pulsation resulting from a regurgitation through incompletely closing tricuspid valves, which has always been considered a most valuable sign of tricuspid regurgitation. True, Mackenzie now casts doubt on this explanation of the sign, and as a matter of fact its value is slight in comparison with the negative, or presystolic, or physiologic pulse. This is a wave seen in the neck over the jugular bulb that results from the interruption to the downward flow of the blood caused by the contraction of the auricle. It is not a pulse at all, but is rather a filling up of the veins, but it does mark the time of auricular systole. The polygraph records this wave and others, and they may all be differentiated by their time relations by means of the simultaneously recorded radial or carotid or apex. It is impossible to over-estimate the value of the results obtained by means of the polygraph. The electrocardiograph, which is an instrument recording electrical changes resulting from the heart's contraction, has for the most part confirmed the findings of the polygraph and has added to our store of knowledge materially—in fact, both of the instruments have been of inestimable value in explaining what were previously very much muddled matters, and are now of great value in recording transitory conditions and illustrating difficult points. It is often necessary to make diagnoses without either instrument to help us, however, and in many cases this can be done, provided the data at hand be carefully observed and collated. It goes without saying that the usual diagnostic data—location

of the apex, size of the heart on percussion, tones, etc., on auscultation, and the character, rate, pressure, etc., of the pulse—all of these are to be noted. We are concerning ourselves particularly with disturbances of the rhythm and in such a case the venous pulse must be carefully noted. This is often visible in perfectly healthy persons, and is usually easily seen where the circulation is at all embarrassed. It is best seen in the supraclavicular fossa, in the location of the jugular bulb, as a rather slow dilatation of the vessels that occurs just before the apical impulse. It is to be distinguished from a transmitted arterial pulse by its location, often by its limitation to a distinct vein, and especially by the difference in time from the arterial pulse. Incidentally, it may be noted that the old test of obstructing the vessel and noting whether it pulsates above or below the obstruction, and other like tests, are confusing and of no value, on account of the free anastomosis, and from the fact that we are dealing with a filling up of the veins, on account of obstruction below and not with a true pulse. The best test is the time relation, and when that fails we can usually make out the vessel itself filling and emptying. In a large percentage of cases the pulse can be made out and its relations to apex and radial noted.

With this relation worked out, we are ready to consider the various types of arrhythmia and their recognition.

Arrhythmia may be due to disturbances of rhythmicity, of irritability, of conductivity, of contractility, and of tonicity—that is, to a disturbance of any of the functions of the heart muscle. We shall consider these seriatim.

1. *Rhythmicity.*—While usually the impulse to contract occurs rhythmically, there are cases where a congenital arrhythmia occurs. Children will show a disturbance of rhythm on slight provocation, and neuropathic adults not infrequently show such an arrhythmia. It is characterized by a perfect coordination of venous pulse, apical impulse, and tone and radial pulse. In any of the above the heart itself is perfectly normal, but the same type of arrhythmia may occur from organic disease of the heart, whether of valvular or sclerotic type. It may occur as a result of infectious diseases, especially in childhood, and should always be considered serious unless proven innocent, as may be done by the rest of the data obtained by a routine examination. The severest cases are those of so-called auricular fibrillation.

2. *Irritability.*—The second group of arrhythmias is that due to the ability of the heart to contract in response to other than the normal rhythmical stimulus. Such a contraction must occur at a point in the cardiac cycle when the heart is not already in systole or in the refractory stage following a normal systole. It occurs then just before the normal impulse, and is followed by a pause longer than usual, due to the next normal impulse finding the heart contracting or refractory, and contraction does not occur till the second normal impulse occurs. These contractions are known as extra-systoles and they may begin either in the auricle or in the ventricle. If the former, there is the normal relation between the venous and apical pulsations and the condition is to be

recognized only by the difference in spacing of the beats—a short pause between beats followed by a longer pause. As a rule, there will be a radial pulse corresponding to the extra-systole, since the ventricle fills with the auricular pulsation. Oftener, the extra-systole begins in the ventricle when it occurs before the venous pulse, as may be noted by watching both the apex and the venous pulse, and the apical impulse often has a peculiar flapping character, due to the ventricle contracting when relatively empty, not having been filled by the auricular systole. For the same reason, the radial pulse may skip a beat, there not being enough blood to fill the arterial tree, and the second tone is at times weak or absent. But the important thing is this: There is always a systolic apical tone. This differentiates it from heart-block, where the radial beat, apex and apical systolic tone are all absent, but the venous pulse is present. Extra-systoles may occur irregularly, or they may recur with every second, third or fourth beat, in the first case giving rise to the pulsus bigeminus, or, in case the pulse is absent, to a condition simulating partial heart-block, where every other beat is blocked. Where the second beat is weaker, the alternating pulse is suggested, the differentiation of which will be considered later. In many cases the extra-systole is perceptible to the patient as a flapping, and may excite apprehension. The causes of extra-systoles are many and various. They occur with any organic disease of the heart, and, on the other hand, they occur in gastro-intestinal and other abdominal lesions, in thoracic disease from toxins, especially, such as tea, coffee, alcohol and especially tobacco, and in persons of a neuropathic habit entirely apart from any pathologic process. In the latter they usually give rise to much apprehension on account of their subjective disturbance and are such a needless source of alarm that their mechanism should be freely explained to the patient, often to his great relief. The diagnosis of the cause of their occurrence is important and depends, of course, on the associated findings. It is worthy of special note that extra-systoles may be the direct result of digitalis, and when frequent and marked, are a sign that the limit of physiologic toleration is being reached.

3. *Conductivity.*—When the power of conducting impulses is lost, there results a condition already noted, known as heart-block. We recognize two forms—complete and incomplete. In the former there is no communication between auricles and ventricles, while in the latter a portion only of the auricular impulses are blocked. This may occur irregularly or every second, third, fourth and so on, may be interrupted or, again, only every third or fourth may go through, the rest being blocked. In complete heart-block the auricle beats at its own rate—eighty to ninety per minute, and the ventricle at its rate, which is much slower—from twenty to thirty per minute. Depending on the degree of block present there may be only an occasional beat missing, or a marked bradycardia. In any case the radial pulse corresponds to the apex, there being neither sound nor impulse for the blocked beats, while the auricular pulse is more frequent, being present at the time of the intermissions. If the venous pulse corresponds in rhythm with the

radial when it occurs, the block is incomplete, and it remains only to determine the proportion between block beats and transmitted ones. If the auricle and ventricle show no correspondence, the block is complete. It is possible to have a combination of regularly recurring partial heart-block and ventricular extra-systoles, when a diagnosis may be very difficult. It may be made known by watching the time relations very carefully. Subjectively, such extra-systoles may be perceptible as flapping beats. In any case of bradycardia attacks of syncope or epileptiform attacks may occur. The combination of bradycardia with attacks of syncope has been known for many years under the name of the Stokes-Adams syndrome. This syndrome has of late years been associated particularly with heart-block and the terms are often used synonymously. It is true that many cases of Stokes-Adams syndrome are due to heart-block, but there is no necessary relation between them, since syncope or epileptiform or at times apoplectiform attacks may occur in any type of bradycardia. They are due to transient cerebral anemia and, of course, occur especially in cases with cerebral arteriosclerosis, while, as a rule, the heart-block is due to arteriosclerosis involving the cardiac vessels. Heart-block has occurred also during or after certain of the infectious diseases, especially influenza and typhoid fever, but is most often seen in cases of syphilis when in some cases a small gumma has been demonstrated in the bundle of His and the complete interruption to the fibers has been demonstrated at autopsy. Within the last two months I have had two cases on my service at the Cook County Hospital, where in one only every fourth beat, and in the other only every other beat was perceptible at the radial. Both cases had been receiving digitalis for a period and the block disappeared three or four days after the drug was stopped. I have no doubt that in these cases the digitalis was responsible for the condition, and this occurs so often that bradycardia or arrhythmia occurring during the administration of digitalis should be investigated carefully. It may indicate vagus stimulation or it may just as well be heart-block. Which the case is, the venous pulse only will tell. There is probably no objection to pushing the digitalis to a degree sufficient to cause a block, but there is no excuse for continuing it after that stage has been reached. Heart-block does not necessarily offer a bad prognosis; the cases due to digitalis and those following the infections often recover promptly, but it is always important to note and deserves careful watching. The treatment is obvious. Where a possibility of syphilis is present, active treatment is advisable. In the other forms rest and the other usual measures are necessary.

4. *Contractility.*—The only important variation in rhythm arising from a disturbance of the power of the heart to contract is the so-called alternating pulse. This is a condition where every other beat is smaller than the preceding one, while the rhythm itself is normal. It may be confused with the bigeminal pulse when the extra-systole comes so soon after the regular impulse that the ventricle has not had time to fill and the pulse is smaller. The differentiation lies in the spacing, the bigeminal pulse coming in pairs close together, with a longer interval

between the pairs. The alternating pulse denotes failing muscular power and is of grave prognostic import. This abnormality, like the others, may occur from digitalis, and is an indication for withdrawing the drug.

5. *Tonicity.*—Lack of tone of the heart muscle results in dilatation and when occurring suddenly gives rise to a rapid running pulse, which may or may not be arrhythmic. In case arrhythmia does occur it would be of the same character and type as that occurring as a primary sinus arrhythmia, from which it cannot and need not be differentiated.

Arrhythmia may be due to a disturbance of more than one function of the heart muscle, such as has been noted above in the case of partial heart-block and extra-systoles. It may be very difficult and at times impossible to figure out such combinations. This is possible in any case only by carefully analyzing all of the factors involved and by fearlessly scanning the resulting data. It will often be necessary to give up any final solution.

It may be noted that an intermittent pulse is most often due to extra-systole and only very rarely to heart-block; in fact, the extra-systole is the most common type of arrhythmia that we meet.

The diagnosis of the type and cause of arrhythmia is a matter not only of academic, but also of great practical importance. Where an extra-systole is perceptible to the patient and has excited grave apprehension, it is well to be able to explain the matter to him and often it will be possible to relieve the condition, particularly when it is due to flatulence, or to some other pathologic condition that may be corrected. Often this symptom will bring a patient under observation at an early stage in the development of increased arterial tension when much may be accomplished by rational measures. In life insurance examinations arrhythmia is at times noted. While the medical directors do not always consider this finding enough to reject a risk on, it would help them in their decision to have a careful analysis of the type of arrhythmia present. The urinary findings and blood-pressure readings are of prime importance in these cases and should be made with especial care, while the possibility of a latent abdominal lesion is to be borne in mind. In the absence of any data pointing to a lesion, the possibility of a purely neurotic origin is to be emphasized, and in these cases the applicant deserves a favorable recommendation from the examining physician.

But of especial importance is the study of cases receiving digitalis, where the slow pulse at the wrist may be due to vagus stimulation, or it may be very misleading. In any case a note of the rate at the apex should be made and the venous pulse studied. Not infrequently you will find the ventricle beating much faster than the pulse indicates, and rarely the auricle will be found beating two, three or four times as rapidly as the ventricle. There is probably no harm in pushing the digitalis to a degree sufficient to disturb the rhythm, even to the production of heart-block, but any marked disturbance is a signal to stop or reduce the dosage, and for that reason should be carefully noted.

31 North State Street.

THE ROAD TO RATIONAL MEDICINE*

A COMPARISON OF MEDICINE AND ENGINEERING

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In casting about for a subject which might be of interest to you, students of the Bradley Polytechnic Institute, I naturally looked in the field of thought to which my life is chiefly devoted, namely, medical education. It struck me that there are many points of resemblance between engineering and medicine. While many of you are not going into technical engineering, you are all interested in the material and mechanical aspect of things. I believe that this is right. I believe that an education founded on actual contact with the substances and forces of the world in laboratories and shops is more likely to help one to a sane and useful life than one founded on introspective or philosophic considerations. I believe that mind training should be founded on hand training. This does not mean that the languages and humanities should be neglected. Do not think that a "practical education" means carpentry or iron working or bread making only. The mind is the thing to be trained. Since Bradley Institute founds this training of the mind largely on contact with the material world, it seemed to me you would appreciate a discussion of medicine from the same standpoint. While you young people are for the most part healthy in body and in mind and, being healthy minded, think little of human ills, it nevertheless seemed not amiss to call your attention to certain fundamental facts in regard to our bodies and to the conditions under which these bodies carry on the activity we call life.

These facts constitute a "train of thought." And if you will permit a facetious turn of the metaphor, I am going to be conductor of this train, and you shall be the passengers. I hope that you will all agree with me in the statements I shall make. I hope, in other words, that you will stay on the train to the end of the journey, which I shall call "Rational Medicine." But it may be some of you will not agree with all that I shall say. I shall therefore stop the train from time to time to allow passengers to leave the cars. If you cannot agree with me, let us, at least, try to understand clearly, in the words of the street urchin, "Where you get off at!" For is it not true that the great controversies, misunderstandings and hatreds among men are due, not so much to the fact that they disagree, as to the lack of clear agreement where, how and why they disagree?

The first fact to be stated and the one which I shall make the locomotive to pull the whole train along is this: We, as knowing beings, become aware of things outside ourselves only through our senses. I do not know what I am, perhaps; but I do know that all I know about things not myself I have learned through the medium of my sense organs. I know that this is a desk because I see it. I know it is hard because I feel it.

*Founder's Day Address at the Bradley Polytechnic Institute, Peoria, Ill., Oct. 8, 1912.

I know that its surface is cold through my temperature sense. You know I am speaking from this platform because you hear me and see me. If I use a word, such as "sugar," you know what I mean because you hear it and associate the sound, "sugar," with a certain material which you have seen and touched and tasted from earliest childhood. If one of you had been born without the sense of taste, the word "sugar" could not mean the same to him as to the rest of us. All that you know of sugar, even if you know the latest chemical theories or the details of manufacture or the statistics of production, you know because you see, hear, feel, taste, smell.

Each of the senses is mediated in our bodies by a definite and fairly understood apparatus. There is always an end-organ. In the case of vision the end-organ is the retina, located in the eye. This end-organ is capable of being stimulated by some form of energy. In the case of vision the stimulus is light. There are nerve fibers connecting the end-organ with the brain, and along these fibers the messages or impulses travel. In the case of vision these nerve fibers are in the optic nerve. Finally, there is the brain itself (or some part of it), into which the messages are received and translated into that response in consciousness which we call sensation. It is a kind of telephone system in which the sense organ is the transmitter, the nerve fibers are the wires and the brain is the receiving station. And just as, in using a telephone, it is not the original voice of our friend that reaches our ear, but a secondary sound created by electric disturbances, which in turn were set up by the original voice; so, in the case of our senses, it is not the original stimulus that reaches our brain, but nerve impulses set up by the stimulus and quite different from it.

In every case, I repeat, in which I gain knowledge of the outside world, the process is the same. The limitation is also the same, namely, that which reaches the central station, myself, is not the thing to be known, but only an impulse or message aroused by that thing in one of my sense organs. I emphasize this matter because I wish you to understand that while our senses give us our only information about the world, they do not give us direct information, they do not give us complete information, and they do not in some cases give us accurate information.

The second of the fundamental facts is this: Whatever may be the relation between myself as a knower and the object called my body, all that I know about my body I learned in the same way that I learn about things outside of my body, namely, by my senses. I see my finger, as I see a brick, and by means of exactly the same eyes. I may feel myself (that is, my body) to be cold, just exactly as I may feel the chill of the brick and by means of the same sensory apparatus. If the brick drops on my finger, I may see a wound and see blood come out; but at the same time another sense comes into play, which tells me nothing at all about the brick, but does tell me my finger has been injured. This is the sense of pain. This sense tells me the condition of my body or some part of my body. Pain never tells me about anything except my body. But apart from this limitation, it is like the other senses. The nerve-endings of

the sense of pain are stimulated by injury or abnormal conditions; the impulses or messages pass along the nerve fibers of pain to the brain; the response in consciousness is pain, just as the response to stimulation of the retina is vision. And this sense of pain, like all the other senses, is limited by indirectness, incompleteness and at times by inaccuracy. But again let me repeat, this sense of pain together with the other senses constitutes the only means by which I can know anything about that very interesting and important object which I call my body.

Right at this point comes one of the most important "getting off" places; and I will pull the bell rope to allow some of you, possibly, to leave the train. For if you cannot agree with the two facts which I have developed in regard to the senses, you will not be able to agree with anything else in this address. If I say, "I see this desk," you may reply, "No, you do not see the desk. There is no desk." If this is your belief, I cannot prove *to you* that you are wrong or that I really do see the desk or that there really is any desk. I may say, "Why, yes, there is a desk. Come up here and feel it and lift it." You reply, "You only imagine you feel and lift it." Similarly, if I drop the desk on my foot and state that my foot pains me, you reply that I only imagine it pains me. "There is no pain. There is no desk. There is no foot. There is no body, no sense organ, no seeing, hearing, paining."

Logically carried out, this negation of the senses constitutes the belief of a number of good people who call themselves Christian scientists. For these people only "mind" exists. Matter is an hallucination and illusion.[1] For these people, if they follow their philosophy to its logical end, there is no earth nor sun; no sea nor solid land; no plants nor animals; no houses, lands, money nor other article of value; no friend, husband, wife nor child — for all of these are material objects, which they can know only by their senses. If they deny pain, which tells that the body is injured, they must deny the temperature senses, which tell that the body is warm or cold; they must deny vision, which tells us we have hands and feet. They must deny that there is a body or any other material object. If they deny one sense, they must deny all the senses. They must deny all objects, just as they deny cancer and cataract and typhoid and diphtheria, for these too are objects which we know only by our senses.

All that the rest of us can do is disagree. But the rule of the senses is so firmly fixed in the very being of most of us, that we cannot get away even when considering those people who deny their senses. And when we see these persons behaving as if they saw and heard and tasted and felt; when we see them behaving as if they were eating and drinking and

1. Quotations from "Science and Health." Ed. 1908.

Page 71. "Close your eyes, and you may dream that you see a flower,—that you touch and smell it. Thus you learn that the flower is a product of mind rather than of matter."

Page 73. "It is a grave mistake to suppose that matter is any part of the reality of intelligent existence."

Page 108. "I learned these truths in divine Science: that . . . the opposite of Truth—called error, sin, sickness, disease, death—is the false testimony of *false material sense*, of life in matter; that this false sense evolves, in belief, a subjective state of mortal mind which this same so-called mind names *matter*."

going on journeys and buying and selling and marrying and dying — when we see these things, we have difficulty in restraining our amazement. They ought not to blame us for this, because the rule of the senses has placed a seal on our thinking and on our language. We speak of common sense, meaning that which accords with the sense experiences of most people; we speak of sensible folk and sensible advice; we say a person has a sensitive nature; that he is in his senses; that he has good sense. Naturally, we find difficulty in applying these terms to people who deny the whole basis of sensation. To us these people seem enveloped in fantastic fog. To them we appear to exist in a world of "error." We and they can never hope to agree. Let us in friendly spirit agree to disagree. They leave our train of thought at this point. We must deny the basis of their philosophy; but at the same time we may cheerfully acknowledge the good influence which their belief exerts over their lives —a good not unmixed with evil, it is true; and a good for which we may hope to find a basis, not where they think they have found it, but in rational medicine, toward which we move.

Now we who believe that, in the main, our senses give us true knowledge will agree that all the objects about us have certain common qualities; for example, they occupy space and they have weight. We all agree in saying that these objects are composed of matter. The chemists demonstrate to our senses that there are some eighty distinct kinds of matter, which do not change one into another,[2] and which they call the chemical elements. The chemists further demonstrate that each one of the millions of material objects of the world is composed of elements, separate, combined or mixed together. Furthermore, we who believe our senses will acknowledge that the object we call the human body is composed of matter. It occupies space. It has weight. Whatever life itself may be, the body, whether living or dead, is matter. And here again the chemists show us, who believe our senses, that the body, whether living or dead, consists of certain of the same elements which exist in non-living objects. All the kinds of elements found in the body are also found in non-living objects.

We also recognize that the material objects of the world are not at rest. Many of the visible objects move all the time, or from time to time; and scientists tell us that the smallest particles of matter are in constant, very rapid vibration. These motions of matter, whether gross or minute, are expressions of various forms of energy, such as mechanical energy, heat, light, electricity, gravitation and chemical affinity. The world, as it appears to our senses, is a changing world. The changes are the interaction of matter and energy. Within our bodies and between our bodies and the outside world interact the same forms of energy that are observed in non-living matter. For example, the body produces heat; and this heat is of the same kind and obeys exactly the same laws as the heat of a fire or the heat produced by friction or the heat arising from absorbed solar radiations.

2. Overlooking, for the moment, radio-activity and the deductions therefrom.

These ideas, while only in recent years scientifically formulated, have always been intuitively recognized. The history of the human race may be built around the development of mechanical principles. Long before man recognized the relations of matter and energy, he had made practical use of them. The first savage who threw a stone or made a bow and arrow or bestrode a floating log or digged the surface of the earth with a stick was directing the forces of Nature as truly toward human ends as he who sits at the switch-board of a Niagara power plant, or he who builds a Panama Canal. This mechanical aspect of history is largely concerned with the invention and development of machinery. A machine is any combination of material parts by which useful changes of energy as regards its direction, intensity and kind are effected. The dynamo is a machine by which mechanical energy is transformed into electricity. The gas engine is a machine by which the chemical energy of gasoline is transformed into mechanical energy. Each of these machines is a composite of simpler machines such as levers, wheels, springs, coils, pistons and valves. And each may be combined into still more complex machines. For example, the gas engine properly connected to a vehicle becomes an automobile, one of the most complicated and wonderful of human inventions.

Within the last century we have discovered a principle of such far-reaching importance as to be a conspicuous milestone, not only in human progress, but also on our journey toward rational medicine. This is the law of conservation of energy. Expressed in simple words, it is that you can get out of a machine only as much as you put into it. A machine can transform energy, but cannot create it. A machine is like a bank. You can deposit gold and draw out bills or silver. But you cannot draw out more than you deposit.

It must now be plain from the definitions and examples given that our bodies are in every respect machines. I say advisedly, "in every respect." For it is clearly demonstrable, if we believe our senses, that our bodies behave as all machines do, and that they do their work subject to the same limitations and under the same laws that other machines do. Whatever else our bodies are, they are surely energy transformers. Whatever life may be, it is surely conditioned by a continuous change of chemical energy into other forms. Whatever unknown principles may underlie its activity, the body obeys the fundamental law of conservation of energy just as truly as the dynamo or the steam engine. The body cannot create energy; it cannot destroy energy. It is a machine. This fact everyone must admit who believes his senses and who is familiar with even the elementary facts of chemistry, physics and physiology.

Consider now the complexity of this human machine. Levers, pulleys, ball- and socket-joints, sliding-joints, cutters, grinders, tubes, valves, bellows, pumps, pressure regulators, lubricators, springs, shock absorbers, lenses, vibrating reeds and resonators — all these familiar mechanical devices, to say nothing of much more complex ones, enter into the make-up of the machinery of the body. Compared with any man-made machine, the enormously greater complexity of the human mechanism

must be apparent to every intelligent person. And since we do not understand fully even the most simple machine, it must be expected that our knowledge of the human machine should be far from perfect. Indeed, when one considers the difficulties connected with this field of investigation — difficulties made greater by superstition and ignorant restrictions — the wonder is, not that we know so little, but that we know so much about this human machine. Is it not strange that we who pride ourselves as an enlightened people should put obstacles in the way of *post-mortem* examinations, by which alone preexisting symptoms can be associated with internal changes? Is it not strange that we should object to new methods of treatment of disease, when it is only by experiment that the doctors can extend existing knowledge? Is it not strange that, if some people could prevent, not even animals might be used for experimentation? Is it not strange that a man, who would expect his mechanic to make a most thorough examination of his automobile to find out the trouble, will object to a careful examination of his body by his doctor, and that he should feel that the physician should be able by a glance to tell what the matter is? These are types of the psychologic difficulties and legal restrictions to medical education and medical knowledge. It is as if Bradley Institute should say to engineering students, "Here is an engine, but you must not take it apart to see how it is built. Here is a dynamo that does not run right, and you must tell what is the matter without examining it."

If you will pardon this diversion, we will advance to a thought so simple that it seems axiomatic, which means only that it rings true to all who believe their senses. Machines get out of order. Parts become worn or broken or misplaced or lost. The mechanism may become clogged with foreign substances. Even the nature of the material may change, as when steel is weakened by crystallization. The more complex the machine, the more things there are to get out of order, and the greater the possibilities for trouble. The proper running of an automobile, for example, is conditioned on the proper adjustment and operation of at least eight distinct and separate mechanisms, each of which in turn is composed of many subordinate parts. There is the motor proper, the carburetor, the ignition system, the cooling system, the oiling system, the transmission system, the vehicle proper and the steering system. It is evident that the machine will not go right if one of these is out of order. Difficulty in one part may affect distant parts; for example, a clogged oil pipe may lead to a hot cylinder. It is evident that the failure of any one of four or five of these systems will stop the car altogether, though every other part be in good condition. Conversely, it is evident that if the machine refuses to go, the trouble may be in any one of the essential mechanisms. Finally the machine may either become so generally worn out as to cease to be serviceable, or it may fail altogether in some fundamental part. In either case it goes to the scrap heap, the burying ground of discarded machinery.

All these ideas can be applied to the human machine. It may get out of order. It may get out of order in many places. The degree of diffi-

culty may vary. Difficulty in one part may cause some other part to operate badly. An inefficient heart, for example, may affect every organ of the body. Finally, if some essential part ceases to do its work, the whole machine will cease to work. We say the man dies.

Right here I must whistle for a station where some of you may wish to change cars. If you do not agree with what I have just said, but believe that the body can get out of order only in one place, here is "where you get off." And from this junction you can switch to "Osteopathy," if you think all diseases are caused by malformation or displacement of bones. Or you can go to "Mechano-Therapy" or to "Chiropractic," which are villages located in the same land of mental sterility. Parenthetically, I may add that I visited the town of Osteopathy, and found a repair shop where the mechanics treated all automobiles by rubbing the fenders. They claimed that all automobile diseases were due to maladjustment of the mudguards. It is needless to say that they met with some success; for any garage man will tell you that sometimes the trouble is in the mind of the owner, rather than in the machine itself.

The station where we have stopped our train is also the junction point for certain other interesting geographical centers. For example, if you believe there is a single remedy for all the ills of the body machine, you may go to some patent medicine village, where they cure heart disease, kidney trouble, appendicitis, cancer, gall-stones, bunions, epilepsy and worms — all with one "sovereign," or rather "dollar" remedy. Or possibly you wish to go to places called "Faith Cure" and "Mind Cure," which lie apparently not far from "Christian Science," but from which they are separated by the mountain range of the senses, for the faith curist acknowledges that there are ills to cure, while the good people of Eddyville claim that there is no disease nor anything to become diseased.

If all who desire to take the various side trips have left the train, let us continue our journey toward "Rational Medicine." Since the body is a machine and since it may get out of order, and since it is a very complicated machine and liable, therefore, to many kinds of disorder, several additional conclusions would seem to be justified. First, if the machine does not run right, it is of great importance to find out what is wrong. In medical language this is called diagnosis. It is evident that the more complicated the machine and the more hidden the mechanisms, the greater will be the difficulty of finding out what is the matter. Hence, we have the need of the man who knows more about the machine than the most of us know. Such men in the realm of inanimate machinery we call machinists or engineers; in the realm of animate machinery we call them physicians. You will acknowledge that such experts are necessary for both kinds of machinery. But here arises the practical difficulty. How are you to know that either the mechanic or the physician is competent? Unfortunately, there are incompetent doctors, illiterate doctors, dishonest doctors; just as there are incompetent, untrained and dishonest mechanics. There are also many competent and honest men in both occupations.

The selection of either a mechanic or a physician is a difficult matter. As regards physicians the state does something by examinations and

license, but the system is not perfect and many incompetents are legally entitled to practice. In the case of a mechanician you can trust considerably to the recommendations of his patrons, for the owners of machines know a good deal about them and about repairing them. But in the case of the physician the number of variable factors is very great; and the ordinary man knows so little of the human machine and what can be done with it that his opinion as to a physician's competency is of little value. More people select their doctor by the color of his eyes or the cut of his whiskers or the street he lives on than by any reasonable criterion. Then they wonder why there are so many "fakers" in the medical business. I have been discussing the basis of medicine from the standpoint of the material universe and the relation of the human machine to this universe. But this is not the standpoint from which people choose their doctors. They want, when they are sick, not a technician but a god. They look on medicine as a kind of magic and on the doctor as a superman who can relieve their ills by some mysterious potion or incantation. Consequently the personal factor becomes overwhelming, and the doctor is chosen on account of the faith they have in him, rather than from real knowledge as to his qualifications. Now you cannot get away from the factor of faith nor can you avoid the influence of personality. Both of these indeed are in a measure valuable as part of the mental attitude conducive to recovery. But important as they are, the faith and personality factors should be backed up, in choosing your doctor, by the same kind of intelligent judgment with which you choose a suit of clothes or an investment, or a chauffeur.

I shall indicate some of the tests which you may apply, acknowledging at the same time the inadequacy of any of them taken singly, and the difficulty of making a proper choice even when all possible information is at hand. First of all, it is easy for you to learn what school a doctor graduated from. A letter to the State Board of Health or to the secretary of the American Medical Association would give this datum. The Carnegie Foundation or the Council on Medical Education, or any well-informed educator would be in a position to tell the standing of the school. While there are exceptions, on the whole the graduates of the better schools are more competent physicians. Personally I would never employ the graduate of a low-grade institution, unless I knew that his medical education had been supplemented by wide additional study under competent direction. Second, you can consider postgraduate experience. It is easy to learn whether a doctor served as intern in a good hospital after graduation. (Do not, however, be misled by imposing certificates on office walls.) In a large municipal hospital the intern sees a greater variety of diseases in one year than the average practitioner does in twenty. Other things being equal, therefore, select the man with hospital experience. For obvious reasons the school training and postgraduate work are more important in judging a young or middle-aged doctor than an old practitioner. Third, consider evidences of continued scholarship. The physician in whose office you find a good library, with new books and journals, should be your choice over one who shows no evidence of reading

habits. Especially if you know that the one man uses his books, should this factor have weight in your choice. The same would apply, more or less, as regards the material equipment of a doctor's laboratory and office, although you should bear in mind the frequency with which an imposing lot of apparatus and instruments form the bait of the shyster and quack. Fourth, ascertain whether the doctor is a member of the societies of his profession. Although there are exceptions, on the whole the societies keep their ranks clean. The man who cannot or will not join is likely to lack somewhere in reaching the best standard of the profession. Fifth, never employ an advertising doctor. While there are doubtless exceptions, on the whole the advertising doctors are unscrupulous quacks, who prey on the credulity of the ignorant. Sixth, consider all the evidence you can get as to the reliability and integrity of the doctor in all the affairs of life. If you find he is honest to the last word and the last penny, this fact should have far greater weight than the report that he cured your neighbor's child, for probably the child would have recovered any way. Conversely, if you find that he does not pay his debts or cheats in business or lives irregularly, you may well be much more influenced against him than by the fact that someone died while under his care. In other words, place evidence of general probity above popular impressions of professional success. Seventh, study his general method of handling his patients. If he has the reputation of making careful and thorough examinations of his cases, choose him over the man who has the reputation of "telling what ails you just by looking at you." Beware of the man whose large practice leads to snapshot diagnosis, overconfidence and neglect of details. Finally, study the personal habits of your prospective doctor. In view of our knowledge of the causes of disease and the nature of infection do not select a slovenly doctor, nor a doctor with a dirty office. The alcoholic physician is as dangerous as the alcoholic locomotive driver. The drug fiend doctor is the prince of fiends.

The choice of a physician involves intelligent forethought on your part. If this is to be your method of selection, you must not wait until you are in dire need. You must choose your doctor as you would choose an architect for a new house or an engineer for your factory, for knowledge, skill, judgment and character. Only when doctors are rationally selected will incompetency and gross dishonesty be banished from the profession. Only then will rational medicine become the universal abode.

Rational medicine is founded on the recognition of the material nature of the universe and the material nature of man's body; on the validity of the senses, which tell us that the human body is a machine of unrivaled complexity; that it obeys the laws and is subject to the limitations of machines; that it can get out of order in a variety of ways and a variety of places; that some, at least, of these disorders can be corrected and that the nature of the correction must be appropriate to the disorder; that the recognition and correction of these disorders require knowledge, judgment and skill. If you acknowledge these facts, you can enter the realm of rational medicine. And as a citizen of this realm you will have certain beliefs and certain duties.

You will believe, for example, that there is only one kind or school of medicine. Rationally, if the remedy be what is scientifically demanded to correct the disease, there cannot be more than one school. You do not find two schools of automobile engineers, one of which puts half a gill of water in radiators, while the other fills them to the top. They all know how much is required, and they put it in. You do not find some mechanics who give a hot box oil and others who take away what oil is already there. It is the same way in rational medicine. You do not find any essential difference in treatment where the nature of the disease is known and the appropriate remedy has been discovered. Diphtheria, antitoxin; small-pox, vaccination; tuberculosis, fresh air; malaria, quinin—the one thing suggests the other just as surely and as rationally as empty tank suggests gasoline or hot bearing suggests lubricating oil or loose nut suggests tightening. On the surgical side these facts are even more apparent. A broken leg must be set, just as a broken drive shaft must be welded. A wound must be properly closed, just as a bursted tire must be properly vulcanized. A clogged intestine must be opened, for exactly the same reason that a clogged drain must be opened.

Formerly homeopathy was a narrow gauge road which led off from the main line. This was before either road had any rational foundation or destination. But just as fast as bacteriology and pathology have demonstrated the nature of disease and just in so far as pharmacology has demonstrated the action of drugs, and just in so far as specific remedies have been discovered, just so fast and so far do the schools of practice harmonize. The homeopathic road now runs so close to the regular route that you can shake hands between trains; and when the present rolling stock has worn out, we may confidently predict the abandonment of the narrow guage route. (This is said with full recognition of the service it rendered in a pioneer period in forcing a correction of grades and improvement of the road bed of the main line.) Indeed, homeopathy and allopathy are at present merely words to conjure with, and poor words at that. Intelligent physicians of all schools use the means which have been found effective to cure disease. They differ in regard to points which cannot be put to the convincing test of experiment. These points are unimportant. The difference between the intelligent homeopath and the intelligent allopath is not greater than that between intelligent practitioners of either sect alone. These differences are of the same order as those to be found among mechanics or engineers, partly differences in technical skill; but more important than these, differences in powers of observation, knowledge, experience and judgment.

As disciples of rational medicine you must recognize the human origin and therefore finite limitation of medicine. It is limited, like engineering, on the one hand by the knowledge, judgment and skill of its professional workers and on the other by the nature of that with which they work. You cannot repair a machine, on the one hand, if you do not know what the matter is or if you do not know the remedy. On the other hand, you cannot repair a machine which is too old or too badly injured. We ought not to expect the impossible from doctors any more than from

engineers. Moreover, we ought doubly to respect the doctor, who unlike the engineer, cannot refuse, even when he knows his work is hopeless, but must stay by his patient to the end and extend the helpful sympathy of a friend, when he can no longer give material aid. Recognizing the similarity of engineering and medicine you will get away from the ignorant expectation that the doctor should know at sight what ails you, and you will conquer the false modesty which holds you back when the doctor wishes to make a thorough examination. Indeed you will go further and be inclined to doubt his skill if he omits such examination, for you will know that many obscure conditions can be diagnosed only by the most careful application of physical, microscopical and chemical tests. You will recognize too that medicine like engineering is a growing science. Knowledge does not come by inspiration, but rather is the slow growth of the observation and experience of men. Says Tennyson:

> Science moves, but slowly, slowly
> Creeping on from point to point.

So medicine grows and moves; and the physician, like the engineer, is constantly experimenting for something better. Like the engineer, too, the doctor is getting results. One hundred years ago the Brooklyn bridge and the appendicitis operation were alike impossible, and for the same reason, namely, lack of knowledge of the materials and forces of Nature. You who believe in rational medicine will assist its progress by advocating state aid for medical research, use of hospitals for teaching and investigation, free use of lower animals for experimentation, encouragement for human dissection, post-mortem examinations and all other means which tend to the growth and spread of medical knowledge. Why should the state of Illinois support a great school of engineering and do nothing at all for medicine? You as citizens of influence, whether men or women, will not allow this condition to continue.

Nor do your duties end here. Since medicine is engineering applied to the human mechanism and since this is the most complicated mechanism that we know, you must recognize that a high degree of education is necessary for those who enter the medical profession. You will agree that a highly complicated technical training is indispensable; that this technical training must rest on a broad knowledge of anatomy, physiology and pathology, and that these in turn are founded on biology, chemistry and physics. The experts tell us that a fair knowledge of the necessary facts and adequate skill in applying them cannot be gained by the average student in less than five or six years above the high school. As believers in rational medicine you will support high standards of medical education; you will urge your legislators to adopt such safeguards as will keep the ill-prepared out of practice. And I may drop you a hint right here that the Illinois laws need improvement in these respects.

As intelligent citizens of rational medicine you will know that just as a large part of the engineer's work is anticipating and preventing troubles in his machinery, so also a large and increasing duty of the medical profession is connected with hygiene, sanitation and the other branches of preventive medicine. Indeed the physician's service in the

actual saving of lives is much greater in this field than in attending the sick. This fact should influence you to two lines of action. In the first place, you should in every way assist those movements which aim to preserve the health of the people. You should support the Owens bill which will establish a national bureau of health. You should favor the use of government money in the interest of human health to at least the same extent as, for years, it has been used for the health of hogs and horses. You should favor compulsory vaccination and the medical inspection of school children. Secondly, recognizing the principle I have stated, you will not wait for your own body to get out of order. But from time to time, like the wise owner of an automobile, you will have your machine thoroughly examined for hidden defects. You will perhaps approach the wisdom of the Chinese, who are said to pay their doctors to keep them well, instead of paying for being cured.

So far I have pointed out similarities between medicine and engineering. There are also important differences. The human machine differs from dead machines in having very great capacity to repair itself. This is not wholly a difference in kind, for such machines as electric batteries may, to a certain extent, recover their power by resting (which means, by allowing time for certain chemical processes to go on). But in the living machine this characteristic is all important. Did you ever stop to think that the human body, on the one hand the most complex mechanism that we can conceive, on the other hand is so simple that a child can run it? It is true about all that the child need do is to supply his body with fuel and water. The machine does the rest. It is always recovering, always curing itself. Minute by minute it replaces the material torn down by the previous minute's activity. Hour by hour it removes useless waste. Day by day it destroys invading organisms that, if permitted to multiply, would poison and destroy the machine. That is why it is so simple that a child can run it; and that is why the doctor's work, so like the engineer's in many ways, nevertheless sharply differs from it. For this power of self-regulation in the human machine on the one hand makes the doctor's work easier; on the other hand, more difficult. Curing the sick is really a partnership arrangement between Nature and the doctor, with no book-keeping by which each may collect his share of the credit. In ninety out of one hundred cases of illness the body would cure itself without a physician. It is in handling the remaining ten cases that the doctor's knowledge and skill are important. Unfortunately not even the doctor can tell, sometimes, whether a given case belongs to the ninety or to the ten.

What the doctor does, for the most part, is to so arrange the conditions that the body may repair itself to the best advantage. Hence you see the foolishness of people who think a doctor is not doing anything unless he prescribes abundant medicine. The physician who tells you when to stop work or change climate, what to eat or avoid eating, deserves his fee more perhaps than he who fills you with nauseating concoctions or he who cuts out some offending part of your anatomy. Moreover, as I have already said, diagnosis is the most difficult part of

medicine. To become a good diagnostician requires far more knowledge, experience and judgment than are required by the merely dexterous surgeon or the merely competent therapeutics. Let me warn you, therefore, against that mistaken psychology which willingly pays a large sum for an operation and begrudges the family physician a modest honorarium. Which man saves your wife's life, the humble practitioner who, called to her bedside at midnight, recognizes an internal hemorrhage or the noted surgeon who an hour later ties the ruptured artery? I say the honors are even. And the compensation should be equal. A recognition of these facts by all people would do away with unnecessary operating and many other evils in medical practice.

Finally I bring you to the end of our train of thought, an observation car, if you will, from which the whole landscape of life's journey may be viewed. It is this: The body and the mind interact on each other. The condition of the body influences the mind. Abnormality of the thyroid gland, for example, causes a form of idiocy. On the other hand the condition of the body may be influenced by the mind. Pawlow showed that the mental condition of a dog affected the flow of its saliva. We all know that fear does the same in ourselves. Cannon showed that anger stops the motions of the stomach. We thus have a scientific basis for the cultivation of such a spirit as will rise above imaginary ills and even conduce to recovery from real disease. That the power of the mind over the body is limited, I must believe. But that no man can measure that power in an individual case I must also believe. Here we have the basis for suggestion, which knowingly or unknowingly every physician employs on his patients. Here also is the scientific basis for all that is good in Christian Science, psychotherapy and such popular treatises as Arnold Bennett's "Human Machine." That this power of the mind over the body can be cultivated is also a fact abundantly proven by human experience and by laboratory experiment. To the dwellers and the workers in rational medicine this cultivation of mind power should be the constant endeavor. "A sound mind in a sound body" was the ancient proverb. "A sound mind and a sound body mutually related, mutually interactive, mutually controlling," is the watch-word over the central station in the city of Rational Medicine. And over the portals are statues of Hippocrates and Aristotle and Galen and Avicenna and Vesalius and Harvey and Jenner and Long and Pasteur and Koch and Lister, and many more of the world's great thinkers and benefactors. And on the tablets of this city are inscribed the names of thousands of physicians who in all ages in honesty of purpose and humility of heart served humanity to the best of their ability. Not that they were or are perfect. Rational does not imply perfection. And round about this station are the dwelling places of millions of men who accept the universe and man himself as their senses dictate, who live sane and happy lives within the limitations which the senses indicate and who leave the rest to that kindly mother Nature, concerning whose ultimate origin, powers and object their senses tell them nothing at all, but in whom, nevertheless, under one name or another, they put their trust.

THE MEDICAL MEN OF TO-DAY*

GEORGE A. ZELLER, M.D.
PEORIA, ILL.

When asked by your toastmaster to participate in the oratorical part of this evening's program, he very courteously permitted me to select my own subject. In doing so I realized that I could not take up the medical men of the past without treading on the domain of Dr. O. B. Will, the necrologist, not only of this organization, but of the state society as well. So beautifully and considerately does he carry out the injunction *"de mortuis nisi nil bonun"* that those of us living are engaged in an eager race to see which can cross the dead line first and receive from his pen a eulogy that few of us would have pronounced on each other during life. May it be many years before he is again called on to perform that gruesome task.

I could not well choose for a subject the medical men of the future, for I am no prophet, and your penetration into the beyond is as keen as mine. Hence, I have restricted myself to the medical men of to-day. Justice could not be done the subject, however, without drawing for a moment on the past.

Ours is a God-given profession. The very creator was a physician, for, did he not breathe life into the first image of man, and did he not take from his side a rib and build from it a woman?

The Scriptures teem with allusions to the healing power, and the Savior went about laying on hands and healing the sick, and when one woman, too timid to enter the divince presence, "touched but the hem of his garment," she was made whole.

The earliest Grecian mythology deals with medical men, and out of it looms large the figure of Æsculapius, the God of Medicine, son of Jupiter and the progenitor, by seventeen generations, of the first real flesh and blood physician, Hippocrates. His life, several hundred years preceding the Christian era, is known and his writings are preserved and read to this day. Construct codes as we will, we cannot excel, in simplicity and directness, the Hippocratic oath.

A few centuries later came Galen, the great Roman physician and then came darkness and oblivion, which engulfed the scientific world for fifteen centuries. Scarcely a medical name illuminates the dark ages. There were poets in those days and some of the master hands of sculpture and painting gave to the world its greatest treasures during that period.

Architectural splendors were created and vandals destroyed an equal number, but no great medical name looms out of the darkness.

It was an age of superstition and incantations, and all there was of medical knowledge rested solely on the teachings of Hippocrates and Galen.

Then came the revival of the modern school of medical thought. John and William Hunter came down to London, the one famed in surgery

*Response at the Annual Dinner of the Peoria City Medical Society, Feb. 9, 1913.

and the other equally great in medicine. They departed from the custom of each great scientist retaining in secrecy his knowledge, gained from books and study, and began to impart it to others. Their example was followed in many lands and the eighteenth century witnessed a remarkable revival in medicine.

Jenner gave to the world his great discovery and the European capitals became the seat of medical learning as they are to this day.

Great masters multiplied. The dissecting-room was giving up the secrets of the human structure. Harvey was demonstrating the circulation. Beaumont and Fletcher the digestion. The laboratory was robbing mystery of its concealment. Simpson gave us the anesthetic and surgery was robbed of its terrors.

Later, and in quick succession came Lister, operating under the spray, healing by first intention and banishing laudable pus. I speak almost of the living presence when I allude to Lord Lister, for it was my privilege to follow him on more than one occasion when he was walking the wards of Kings College Hospital, London.

So rapid have been the advances in surgery that few of you knew that he was still living when you learned of his death only two years ago. But England knew it. The Crown knew it, for he had been knighted many years before, and at his death a tomb was opened for him in the temple of England's Great, and his was the last body laid to rest in Westminister Abbey.

Scarcely had he taught us the value of antisepsis, when Lawson Tait proclaimed asepsis and threw aside all germicides by sterilizing the operative field and everything that came in contact. Then came Billroth and Virchow and Von Liebig and Pasteur, and finally Koch; each a fixed star in the medical firmament. It would seem that with the passing of this brilliant galaxy, the last niche in the temple of fame had been filled.

They were the medical men of the past, and the profession could well have remained quiescent, and been content to live for centuries in the reflected glory of their achievement, as they did for two thousand years after Hippocrates and Galen.

Finsen permeates the tissues with light and banishes lupus, even while premature death had marked him for its own; and Roentgen visibly reveals to us the innermost recesses of the human body by means of his nameless ray, and Ricketts, giving us his life in Mexico in answer to the challenge to prove his theory of the transmissability of Rocky Mountain fever.

Are there no more worlds to conquer? Have these men who have gone before absorbed all the earthly glory? Go ask the judges who awarded last year's Nobel Prize and they will say they gave it to one of the medical men of to-day, to Carrel, whose delicate stitching together of the blood-vessels may make it possible some day to assemble a human body from the dismembered fragments of others.

Does the crusade against the great international evil, syphilis, stop at mercury and iodids? Along comes Ehrlich with his mastery of synthetic chemistry and with a single application eradicates the disease.

And with all the clearness of diagnosis given us in the writings of Hunter and Ricord, we have to thank Noguchi and Wassermann for the unerring precision of the microscope as applied to the spinal fluid—two of the medical men of to-day. The Occident and the Orient meet on common ground in the quest of the unknown.

Does the work of Koch lag for twenty years because of the want of a living organism to destroy the bacillus which he discovered? All eyes turn toward Berlin to-day, awaiting the next announcement of Friedmann.

No, the door of opportunity is not closed. Two brothers found it ajar in an obscure town in Minnesota and the entire surgical world pays homage to the Mayos.

Do the French give up the construction of the Panama Canal because of the ravages of tropical diseases? Along comes Gorgas and builds it with mosquito netting.

I have said that no man can speak for the future. I have alluded to the past, but we dwell in the present, and so, with due reverence for those who have gone before and looking forward with even greater expectations to those who are yet to come, we can feel that those of our day and generation have nobly carried forward the banner of progress, and that the illustrious past is ably sustained by the *medical men of to-day.*

THE NEAL DRINK CURE

This alleged system of cure for inebriates, it appears, is now arranging to invade the state, after having conducted a hospital in Chicago for about two years. Agents for the concern recently appeared in Springfield and leased property in the best residence section, and announced they would conduct a branch of the Neal Institute. The residents at once got busy and protested against this institution, and at present writing it appears as if they would be able to prevent its location in this place. During the discussion at a public meeting, Dr. C. P. Colby showed up the character of the men conducting this enterprise by reading from the records of the *Journal A. M. A.* We understand Mr. Bruce, the proprietor, endeavored to minimize the hard facts brought out by Dr. Colby.

It appears that this concern will endeavor to invade other communities in the state, and if so, active steps should be taken to prevent successful locations.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY

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MAY, 1913

CIRCULATION OF JOURNAL PASSES 6,000 MARK

President Nickerson, at the beginning of his term of service, announced that one of the great objects of his administration would be to put the Illinois State Medical Society in the front rank as to membership and practical work for the benefit of the members. With the aid of canvassers from the American Medical Association and the secretaries of all local societies, this object has to a large extent been accomplished, and while it is not certain that Illinois will lead in membership all the state societies in the Union, yet it is certain that great work has been accomplished during the administration of President Nickerson, and the fact that 6,100 copies of THE JOURNAL are printed each month indicates the wide circulation not only in Illinois, but in nearly every civilized country in the world.

Contributors to our JOURNAL may rest assured that very few medical periodicals in any country exceeds ours in the number of copies circulated, and we believe that no other journal is read more carefully and conscientiously, and more appreciated than by our members and subscribers.

The society, therefore, comes to its sixty-third anniversary meeting in excellent condition as to membership and influence, and the attractions at the meeting are such that there should be a record-breaking attendance.

GRADUATES OF LOW-GRADE SCHOOLS AND THE CRIMINAL COURTS

Time and again during the past ten years when the name of a physician has appeared in the criminal courts we have taken occasion to look up the school of graduation of the culprits, and almost without exception have found them to be the finished products of low-grade proprietary medical schools.

On our desk one week recently was a clipping from one of the larger counties of the state stating that Dr. X., a graduate of a low-grade Chicago school, had been arrested, taken to the county seat and placed under bond on the charge of criminal abortion.

Another county reports that a certain Dr. Y. was a defendant in a suit following extraordinary gossip through the whole community. On looking up this man's record we found him not even a graduate, but practicing possibly illegally by the grace of the State Board.

A third clipping details the doings of a swindler from Chicago, who invaded the wilds of an intelligent (?) country community, and made dozens of farmers believe they were afflicted with an incurable heart disease and a fixed passion for signing promissory notes to pay the bearer on demand. We are unable to locate the school from which this pirate graduated. His name, or names, as given, does not appear in any directory.

All these scandals are not helping the medical profession in the eyes of the public. On the contrary, they are serving to degrade the reputation of all honorable practitioners, and lead the people to mistrust the entire body of physicians. Christian scientists, antivaccinationists and all the other enemies of the profession are quick to make capital out of such delinquencies.

Under all the circumstances it is quite remarkable that any one of reputation is to be found attacking the organizations which are working to improve medical schools and their output.

LEGISLATIVE INVESTIGATION OF MEDICAL MATTERS IN CHICAGO

Under the guidance of Lieutenant-Governor Barrett O'Hara, a committee of state senators has recently investigated several medical institutions in Chicago, and uncovered a state of affairs astonishing to the ordinary citizen. Among these were the National Emergency and Maternity Hospital and the National Medical University, all located at 1426 Wells Street, and conducted by L. V. Rogers, a Hahnemann graduate. For many years the diplomas of this school were recognized by the Illinois State Board of Health, although it seems recently the recognition has been withdrawn.

Associated with Rogers, as appeared in newspaper reports of the investigation, was one Dr. A. N. McCullough, said to be a graduate of the National Medical University, but whose name does not appear in the

official register of physicians. From the reports it would appear that the maternity hospital was little better than a baby farm.

Other institutions investigated were the Anna Ross Sanitarium conducted by Dr. W. F. Briney, and the Union Park Maternity Home, conducted by Dr. Chas. S. Wood, both graduates of the Bennett Medical College. It is said Dr. Briney admitted he had given physicians $20 for each patient sent him. It is also said that Dr. Wood had disposed of one infant eight hours after birth. Wood said he spends $600 a year advertising in fifteen medical journals.

Those readers who have not the newspaper accounts and wish a full account should secure a copy of the complete committee report when printed.

ANOTHER BILL OF INTEREST TO THE PROFESSION

House Bill 467, introduced by Mr. McCarty and referred to the Committee on Judiciary, is said to have the backing of the Chicago Surgical Society. It is called "A Bill for an Act to Promote the Science and Art and Regulate the Practice of Surgery in the State of Illinois."

SYNOPSIS OF BILL

Section 1.—No person to practice surgery or any branch thereof without license from State Board of Health.

Section 2.—Must be graduate of approved medical school and have been engaged in general practice of medicine for five years, *and* had internship in general hospital or studied surgery in American or foreign university one and a half years, *and* served as assistant to surgeon three years.

Section 3.—Written application to be made to State Board of Health for a license with fee.

Section 4.—State Board shall notify applicant to appear before a Commission for examination written in whole or in part.

Section 5.—President of each university in the state with medical department recognized by State Board of Health to nominate one member of Commission. Governor to nominate one member. Commission to prescribe rules and regulations for examinations and hold examinations.

Section 6.—Commission to certify successful applicants to State Board of Health which will issue license. Wilful violation of rules sufficient cause for refusal to certify.

Section 7.—Fees for examination and license, $10.

Section 8.—Provides for reciprocity of license with other states and countries. Accepts examinations of U. S. Army, U. S. Navy and U. S. Public Health Service. (Excepts official duties of above services.) Prohibits others from practicing surgery without license.

Section 9.—Persons now licensed to practice must make application with fee of $2 within year of passage of act; otherwise must take examination for license.

Section 10.—License forms to be determined by State Board of Health, and licenses to be signed by majority of members and attested by secretary.

Section 11.—State Board of Health may refuse to issue license to individual who has been convicted of criminal abortion, or has practiced fraud or advertised under names not his own, and may revoke licenses for same causes; provided, hearing before Board is given.

Section 12.—Members of State Board of Health shall receive $10 per day for each day spent in duties imposed herein, and Commission shall receive not over $5 for examination of each applicant passed on, providing that all compensation shall be paid from fees received by said Board.

Section 13.—Every license to be recorded in office of county clerk of county where licensee resides or practices. County clerk to keep list of licenses recorded. Book open to public inspection.

Section 14.—"Any person shall be regarded as practicing surgery, within the meaning of this Act, who shall perform any surgical operation other than that of minor surgery in family practice, or emergency surgery."

Section 15.—Any person violating Act to "forfeit and pay to the People of the State of Illinois, for the use of the State Board of Health, the sum of $100 for the first violation, and $200 for each subsequent violation; the same to be recovered in an action of debt, etc." Judge to commit to jail until judgment and costs are paid, not more than thirty days after first conviction, not more than ninety days for each subsequent violation.

Any person filing or attempting to file as his own, the license of another, to be deemed guilty of a felony and subject to punishment of forgery.

Section 16.—All acts or parts of acts in conflict herewith are hereby repealed.

DIVISION OF FEES

One of our prominent members in southern Illinois has received the following letter signed by one Emory Lanphear, who has been more or less active in the profession in St. Louis for several years. The member sending this without comment evidently resents the insult, especially the first statement made in the Lanphear letter, and who would not be insulted by being approached in such a manner. It is hardly necessary for us to warn our members against signing such a card as accompanies this letter, for if they have any tangible property it might cost them dearly before they are through with the American Hospital:

ST. LOUIS, MO., April 28, 1913.

My Dear Doctor:—I know you believe in "division of fees" between specialists and general practitioners and I want to interest you in the American Hospital (headquarters of the American Polyclinic) on that basis. I would like to have you sign and return the enclosed card. If you never send a pay patient there will be no harm done; if you do, you will become part owner of a hospital which we are going to make the most popular in the Mississippi Valley. Please note the card states explicitly that you are to have 50 per cent. of all fees (exclusive of hos-

pital care, of course) received from your patients sent to our staff for operation or treatment. Hoping for an immediate and favorable reply, for which a stamped envelope is enclosed, I remain,

Most cordially yours,

EMORY LANPHEAR.

Capital Stock, $50,000 Paid in, $44,000 Cost of Property, $56,000

AMERICAN HOSPITAL

ST. LOUIS, MO.

I hereby subscribe for two (2) Shares of Stock of the American Hospital, of the par value of $10.00 each, and agree that payment for same shall be deducted from my share of the fee received from the first pay patient (or patients), I shall send to the hospital for treatment. It is expressly agreed as a part of this contract that I am to receive 40 per cent. of all fees received from my patients sent to the hospital, exclusive of hospital charges.

Card sent ..... Patient received .. ..
Card returned ... . Stock issued .....
.....M. D.
Address.....
Fee received:
.....

THE PSYCHOLOGY OF DISASTERS

At numerous points in the Mississippi Valley during the past sixty days disasters from wind and water have created conditions which greatly interest the medical profession. Exaggerated reports of these disasters were circulated throughout the entire world, and served to again demonstrate that the human mind is prone to exaggeration at such times. It is interesting to note the fact that the picturesque liar is especially busy during times of excitement. No little hardship was caused to the medical profession because of such reports. For example, such exaggerated reports of the disaster at Omaha reached the neighboring cities, and we learn that in Des Moines some sixty doctors and nurses were called from their beds and rushed to the western city, only to find that their help was not needed, and the time and money expended for the trip was useless.

Again at Dayton, the first reports of the disaster stated that not less than 5,000 had been drowned, and that there was great danger to those who remained from starvation and disease. It finally developed that the number of lives destroyed was not greater than at several other points, notably, Columbus, and the buoyant fitness of the American people was shown by their ability to care for themselves under most trying circumstances.

One of the persons to sacrifice his life at Dayton in attempting to save others was a major surgeon of one of the militia regiments.

At Hamilton it was reported that there was a great need of help for the doctors and subscriptions were called for in Cincinnati to render them assistance.

Dr. Mark Milliken of Hamilton contributed an interesting letter to the Cincinnati *Lancet-Clinic*, stating that while the doctors had lost

heavily, all but one were taking care of themselves and needed no assistance.

In southern Illinois, a scare regarding contagious diseases was circulated, which proved to be grossly exaggerated, and instead of 200 cases of small-pox reported at Roseclaire, only twenty-two cases were found of a mild character.

It is worthy of remark that few if any lives were lost in communities situated on the banks of the Ohio. This stream rampages every few years, and the natives take to the hills as soon as trouble begins. It was the cities located on smaller streams which had never before been dangerous that suffered. Nearly every life sacrificed at Delaware on the Olentangy would have been saved had the victims heeded the warnings of the officials.

From all sides we learn that the medical profession acquitted itself with great credit at all danger points, and proved the value of the presence of this trained class of citizens who are accustomed to meet emergencies firmly and intelligently, and to report conditions according to real facts and without exaggeraton.

It would be a splendid thing for the entire community if they had a little of the discipline which is so widely prevalent in the medical profession, and which leads them to meet emergencies as they really are, and not as they might be. Usually the psychology of disasters borders on hysteria or even mild mania.

ALIENISTS AND NEUROLOGISTS

At a meeting of alienists and neurologists of the United States, held in Chicago, April 17, 18 and 19, 1912, under the auspices of the West Side Branch of the Chicago Medical Society and the Chicago Medical Society, a resolution was adopted to hold a second meeting in Chicago, June 24-27, 1913, and the following committee was appointed:

Dr. H. H. Moyer (chairman)..Chicago	Dr. C. H. Anderson.....Menard, Ill.
Dr. L. H. Mettler.....Chicago	Dr. H. C. A. Chester.....Menard, Ill.
Dr. W. A. Evans.....Chicago	Dr. E. Z. Levitan.....Peoria, Ill.
Dr. A. M. Corwin.....Chicago	Dr. Wm. A. Crooks....Watertown, Ill.
Dr. W. J. Butler.....Chicago	Dr. H. Douglas Singer, Kankakee, Ill.
Dr. Peter Bassoe.....Chicago	Dr. W. F. Lorenz.....Mendota, Wis.
Dr. Wm. L. Noble.....Chicago	Dr. H. A. Tomlinson....Wilmar, Minn
Dr. W. T. Mefford (secretary) Chicago	Dr. H. M. Cary.....Spring City, Pa.
Dr. Bayard Holmes.....Chicago	Dr. Theo. Diller.....Pittsburgh
Dr. Jacob Frank.....Chicago	Dr. John Punton....Kansas City, Mo.
Dr. P. J. H. Farrell.....Chicago	Dr. Henry A. Cotton...Trenton, N. J.
Dr. Frank P. Norbury, Springfield, Ill.	Dr. K. S. West.....Cleveland
Dr. W. L. Athon.....Anna, Ill.	Dr. T. B. Throckmorton, Cherokee, Ia.
Dr. Sidney D. Wilgus..Kankakee, Ill.	Dr. Chas. Berstein.....Rome, N. Y.
Dr. H. B. Carriel.....Jacksonville, Ill.	Dr. Albert E. Sterne.....Indianapolis
Dr. H. G. Hardt.....Lincoln, Ill.	Dr. Chas. Read.....Kankakee, Ill.

MEDICAL FAKE ADVERTISING PROHIBITED

Senator Hurburg of Galesburg has introduced a duplicate of the Ohio law into the Illinois State Senate, which is directed at advertising doctors. We are sure the bill will have substantial support from the honorable medical profession.

The following is the text of this drastic legislation:

Section 1. Whoever shall advertise in any newspaper, publication, magazine, periodical, pamphlet, or by circular or form letter, or cause to be distributed any advertisements in any form whatsoever, to restore manly vigor, treat or cure lost manhood, stricture, varicocele, hydrocele, diseases of the genito-urinary organs, or any venereal disease, or to cure cancer or tuberculosis, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding $100, or by imprisonment not less than one month nor more than six months, or both.

Section 2. Any owner or managing officer of any newspaper, publication, magazine, or periodical in whose paper shall be printed or published such advertisement as is described in this act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding $100, or by imprisonment not less than one month nor more than six months, or both.

DR. JAMES A. EGAN

In the last number of the JOURNAL we mentioned the death of the late Dr. James A. Egan, who was secretary of the Illinois State Board of Health for over sixteen years, having served under four governors. Dr. Egan was an affable and agreeable man and an enthusiastic, energetic and efficient part of the administration which he served. He had an attractive personality and few men have had more enthusiastic followers. He had a kindly disposition and to his friends was generous to a fault. As a husband and father he embodied those exemplary qualities which made him the center of a beautiful home life. The writer of these lines has been frequently entertained at his home and enjoyed those delightfully human and strenuously generous attentions which it was always his greatest joy to bestow on his friends.

After a term of service in the United States Army he studied medicine at the Northwestern University Medical School from which he graduated in 1893. Almost immediately after graduation he was appointed to the staff of the department of health of the city of Chicago. Here his energy and enthusiasm attracted immediate attention and he was rapidly promoted.

Among Dr. Egan's conspicuous qualities were unusual affability of temperament and a willingness to work. He was a tireless worker wherever he worked and was an organizer of ability. He knew men, and by his keen observation and great energy succeeded to an unusual degree in leading them to do the things which he planned. These qualities soon attracted attention, and when there was a vacancy in the secretaryship of the Illinois State Board of Health his friends considered him the one man in Illinois with the requisite ability and training to fill the vacancy and he was appointed by Governor Tanner. Each succeeding governor evidently shared the confidence of these early friends and supporters and the hosts of others around him during his service, for each continued him in office.

During his incumbency many changes and improvements were inaugurated. Among the changes which marked his administration we would mention the many excellent pamphlets on contagious diseases and their

prevention, methods of disinfection, etc. The pamphlets on small-pox, tuberculosis and the care of the child deserve especial mention. These and others were profusely illustrated, which was in itself an innovation in public health pamphlets of the day. During his administration the Board established the monthly Bulletin; established the laboratories which are now a part of the Board's equipment; secured the passage by the legis-

lature of the bill which has given the citizens of the state free antitoxin for the treatment of diphtheria, secured the passage of the vital statistics law and established the bureau of vital statistics as one of the departments of the Board of Health, which, while not altogether satisfactory, was the best which could be secured at the time, and he continued to work for a more complete vital statistics law which would bring Illinois into the registration area. He secured the provision for reciprocity in

medical education and was largely instrumental in establishing the Board's present schedule of preliminary requirements for entrance to the study of medicine, as well as the schedule of minimum requirements for the medical course of study. These are among the things which consumed his great energy and mark the advances which he worked for in his department and for his state.

Like all public men, he met with opposition. This was particularly true of his work in medical education and licensure. Here he incurred the opposition of many of the strongest and most influential men in the state, but even this opposition was largely a revolt against a political system through which Dr. Egan worked, rather than a personal opposition. This will be shown by the fact that his untimely death will make little or no change in the force or character of the opposition which is really against an unjust and inefficient political system. Dr. Egan had the misfortune to be a part of this system which was essential to his continuance in office, and at the same time brought him many political and professional enemies. These same enemies could have been his staunchest friends under a more just political system.

PEORIA MEETING

As stated in previous issues of the JOURNAL, the annual meeting at Peoria beginning May 20, promises to exceed any other meeting yet held, in the character of papers to be presented and the scientific and social entertainment offered.

We understand that the Louisiana health train will be at Peoria at the time of the meeting, and this with the moving picture exhibit of nervous diseases will afford ample opportunity for instruction of the most valuable kind. The meeting hall and the hotel accommodations of Peoria leave nothing to be desired, and we are sure that large numbers of the members of the state society will be on hand to make this meeting a notable gathering in the history of the State Society.

PEORIA'S LEADING HOTELS

Jefferson Hotel, Horace Wiggins, Manager, 300 rooms. Rates, $1.50—$3, European.

Fey Hotel, E. A. Whitney, Manager, 175 rooms. Rates, $1—$3, European.

Mayer Hotel, Wm. Mayer, Manager, 200 rooms. Rates, $0.50—$1.50, European.

Niagara Hotel, C. S. Buchanan, 125 rooms. Rates, $1—$2, European.

Black's Hotel, Wm. Black, Manager, 40 rooms. Rates, $0.50—$1, European.

Faust Hotel, Fauser & Heitz, Managers, 60 rooms. Rates, $0.50—$1, European.

Majestic Hotel, E. B. Huchison, Manager, 90 rooms. Rates, $0.50—$1, European.

Smith Hotel, Norman Smith, Manager, 100 rooms. Rates, $2—$2.50, American.

Lud Hotel, W. J. McGuire, Manager, 50 rooms. Rates, $1—$1.50, European.

Regis Hotel, R. N. Van Sant, Manager, 110 rooms. Rates, $0.75—$1.50, European.

Grace Hotel, P. M. Carney, Manager, 120 rooms. Rates, $0.50—$1.50, European.

Arion Hotel, Murray & Lang, Managers. Rates, $0.50—$0.75, European.

Knox Inn, C. W. Doll, Manager, 45 rooms. Rates, $0.50—$1, European.

INDEX TO TRANSACTIONS

The index appears with this issue and we desire to call attention of the members to copies bound in cloth, which will be in the hands of the secretary at the Peoria meeting, and may be exchanged for the copy you have on the payment of fifty cents.

Official Program

PROGRAM OF THE SIXTY-THIRD ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY, PEORIA, MAY 20, 21 AND 22, 1913

ORDER OF PROCEEDINGS

Registration office in the Exhibit Room in the basement of the Shrine Temple.

FIRST DAY. TUESDAY. AFTERNOON

2:30. Call to order of the Society in General Session in the Gold Room of the Jefferson Hotel by the President, L. H. A. Nickerson, Quincy. Report of the Chairman of the Committee on Arrangements. J. H. Bacon, Peoria.

3:00. Call to order of Secretaries' Conference in the Gold Room of the Jefferson Hotel. E. W. Oliver, Peoria.

FIRST DAY. EVENING

8:00. Call to order of House of Delegates in the Gold Room of the Jefferson Hotel by the President, L. H. A. Nickerson.

SECOND DAY. WEDNESDAY. MORNING

9:00. Call to order of Sections 1 and 2 for the reading and discussion of the papers of the program, in the Auditorium of the Shrine Temple.

9:00. Call to order of the Section on Eye, Ear, Nose and Throat in the Gold Room of the Jefferson Hotel. Willis O. Nance, Chairman, Chicago.

9:00. Call to order of the Section on Public Health and Hygiene, in the Auditorium of the Association of Commerce, opposite the Jefferson Hotel. J. W. VanDerslice, Chairman, Oak Park.

12:30. Adjournment for luncheon.

SECOND DAY. AFTERNOON

1:30. Call to order of Sections for the continuation of program.

2:30. President's address. L. H. A. Nickerson, Quincy.
Oration on Medicine. Joseph Collins, New York.

4:00. Meeting of the Medicolegal Committee in the Association of Commerce rooms. Harold N. Moyer, Chicago.

5:30. Adjournment.

SECOND DAY. EVENING

8:00. Boat ride on Steamer *Columbia* (capacity, 1,250) on the Illinois River. Dancing, quartette singing and refreshments.

THIRD DAY. THURSDAY. MORNING

9:30. Call to order of Sections 1 and 2 for the continuation of the program.

12:30. Adjournment for luncheon.

THIRD DAY. AFTERNOON

1:30. Reconvening for continuation and completion of program.
Oration on Surgery. Charles D. Scudder, Boston.

4:00. Call to order in General Session by the President to receive the Report of the House of Delegates.
Induction of President-Elect.

5:30. Final adjournment.

The Section on Eye, Ear, Nose and Throat will also hold surgical clinics at the St. Francis Hospital, on Glen Oak Avenue, at 2:00 o'clock, on Tuesday afternoon. Two operating-rooms will be used at the same time. (Take the Heights or Knoxville car and get off at Glen Oak Avenue and walk east.) This Section will also have a banquet on the evening of May 20, at 6:30 p. m., at the Creve Coeur Club.

The Health Train Exhibit of the state of Louisiana, under the personal supervision of Dr. Oscar Dowling, President of the Louisiana State Board of Health, will be located on Hamilton Avenue, between the Jefferson Hotel and the Shrine Temple.

The Chicago Tuberculosis Society will have an exhibit on the exhibit floor in the basement of the Shrine Temple, occupying 1,080 square feet of space.

LADIES' ENTERTAINMENT

Wednesday afternoon, at 2:00 p. m., the ladies will meet at the Jefferson Hotel and will be given an automobile ride through the city's parks, the State Hospital, out Grand View Drive to the Country Club. where light refreshments will be served.

PROGRAM

Section 1. FRANK P. NORBURY, Chairman, Springfield; J. F. CHURCHILL, Secretary, Chicago.

Section 2. STEPHEN C. GLIDDEN, Chairman, Danville; H. M. RICHTER, Secretary, Chicago.

FIRST DAY

1. Status of Vital Statistics in Illinois and Our Obligations. T. H. D. Griffitts, State Board of Health, Springfield.
   Discussion of paper by C. W. Lillie, E. St. Louis; M. O. Heckard, Chicago.
2. A Country Surgeon's Experience in Stomach Surgery. J. W. Hamilton, Mt. Vernon.
3. Report of a Case of Transplantation of Bone for Ununited Fracture of the Right Tibia, with Remarks on Osteogenesis. J. E. Allaben, Rockford.
   Discussion of paper by M. L. Harris, Chicago.
4. Sporotrichosis in Man. W. W. Hamburger, Chicago.
5. Operative Treatment of Ununited Fractures with Contracture of the Attached Muscles. P. B. Magnuson, Chicago.
6. Some of the Rarer Fractures about the Wrist Joint. D. B. Phemister, Chicago.
7. Auricular Fibrillation. Frederick Tice, Chicago.
8. A Clinical Research on the Surgery of the Upper Abdomen. A. D. Bevan, Chicago.
   Discussion of paper by Frank Billings, J. B. Herrick and B. W. Sippy, Chicago.
9. The Early Identification of Tuberculosis of the Lungs. Sumner Miller, Peoria.
10. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, with Cases. E. A. Gray, Chicago.
    Discussion of paper by C. A. Elliott, Chicago.
11. Three Score Years and Ten—and After. C. B. Johnson, Champaign.
    Discussion of paper by T. J. Pitner, Jacksonville; O. B. Will, Peoria; D. W. Graham, Chicago.
12. Nephroptosis. W. E. Schroeder, Chicago.
13. President's Address, "Lifting the Mantle of Reserve." L. H. A. Nickerson, Quincy.
14. Oration in Medicine. Joseph Collins, New York.
15. X-ray Manifestations of Gastro-Intestinal Motility. C. A. Elliott, Chicago.
    Discussion of paper by Carl E. Beck and H. E. Porter.
16. Operative Relief of Barrel-Shaped Chest of Bronchial Asthma, or Rigid Dilatation of the Thorax. E. Wyllys Andrews, Chicago.
17. An Experimental Study with Intestinal Suture Materials. G. T. Courtenay, Chicago.
    Discussion of paper by Wm. E. Schroeder and H. M. Richter.

18. Heredity and Epilepsy — A Plea for the Colonization Treatment of the Epileptic. D'Orsay Hecht, Chicago.
19. Motion Pictures Illustrating Various Nervous and Mental Diseases. Theodore H. Weisenburg, Philadelphia.

SECOND DAY

1. A Simple Method of Preparing Catgut. E. M. Sala, Rock Island.
2. Treatment of Hemorrhage in the New-Born. Mark T. Goldstein, Chicago.
3. The Results in Abbott's Method of Treatment in Scoliosis. J. L. Porter, Chicago.
   Discussion of paper by E. W. Ryerson and C. M. Jacobs.
4. A Consideration of Two Hundred Cases of Traumatic Injuries of the Abdomen. Frederic A. Besley, Chicago.
   Discussion of paper by Wm. E. Schroeder and Clifford U. Collins.
5. Benzol in the Treatment of Leukemia. Frank Billings, Chicago.
6. Management of the Wound After Amputation of the Breast for Carcinoma. D. W. Graham.
7. Mitral Stenosis Complicating Pregnancy. S. E. Munson, Springfield.
8. Displacements of the Colon. Carl E. Black, Jacksonville.
9. Oration in Surgery, "Stenosis of the Pylorus in Infancy." Charles L. Scudder, Boston.
10. Obstruction of the Bowel. Clifford U. Collins, Peoria.
    Discussion of paper by Allen B. Kanavel.
11. The Gold Chlorid Reaction (Lange) of the Cerebrospinal Fluid in Congenital Syphilis; a Preliminary Report. C. G. Grulee, A. M. Moody, Chicago.
12. Constrictions of the Duodenum. M. L. Harris.
13. The Physician and the Defective. C. B. Caldwell, Lincoln State School, Lincoln, Ill.
14. Motion Pictures.

SECTION OF PUBLIC HEALTH AND HYGIENE

J. W. VANDERSLICE, Chairman, Oak Park.
GEO. T. PALMER, Secretary, Springfield.

1. Milk-Supply of Smaller Cities and Towns. Walter W. Greaves, La Salle.
2. Country School Sanitation (by invitation). Francis G. Blair, Supt., Department of Public Instruction, Springfield.
3. Country School Sanitation, the Medical Viewpoint. Louis Becker, Knoxville.
4. Farm Wells. Prof. Edward Barstow, Ph.D., Director, State Water Survey, Urbana.
5. Vital Statistics and Water-Supply. Prof. Paul Hansen, B.S., Engineer, State Water Survey, Urbana.

6. Methods of Control of Tuberculosis. Sumner M. Miller, Peoria. Discussion opened by John Ritter, Chicago; E. W. Fiegenbaum, Edwardsville; J. W. Pettit, Ottawa.
7. The Louisiana Health Train. Under Direction of Oscar Dowling, President, Louisiana State Board of Health. The train will be located on Hamilton Street, and will be inspected by the Section. Demonstrations and lantern views will be shown.

EYE, EAR, NOSE AND THROAT SECTION, ILLINOIS STATE MEDICAL SOCIETY, MAY 20, 21, 22, 1913.

The meeting place for the section will be in the Gold Room of the Jefferson Hotel.

The banquet will be held the evening of May 20, at 6:30 at the Creve Coeur Club and the tickets will be $2.00 per plate. An excellent menu has been provided.

Surgical clinics for the Eye, Ear, Nose and Throat Section have been arranged for, at the St. Francis Hospital, the afternoon of May 20, beginning at 2 p. m. Two operating rooms will be used at the same time, so that a continuous clinic will be held until all the cases are disposed of.

A reception of the Country Club and steamboat and automobile rides are a part of the entertainment provided by the general committee.

EYE SECTION

1. What Illinois Can do to Prevent Blindness. Chairman's Address. Willis O. Nance, M.D.
2. The Rôle of the Tarsus in Trachoma. H. W. Woodruff, M.D.
3. A Report of the Examination of the Eyes in General Paralysis of the Insane, in a Series of Fifty Cases. Carroll B. Welton, M.D.
4. Operations for Glaucoma. C. A. Wood, M.D.
5. The Use of Hexamethylenamin in Ophthalmology. H. S. Gradle, M.D.
6. The Treatment of Trachoma with Special Reference to Expression and Friction with the Author's Ground Glass Rod. C. G. Darling, M.D.

EAR SECTION

7. The Subjective Test of Hearing. G. H. Mundt, M.D.
8. The Blood-Clot in Mastoid Operations. A. H. Andrews, M.D.
9. The Treatment of Nerve-Deafness. J. Holinger, M.D.
10. The Diagnosis and Treatment of Meningeal Complications of Suppurative Diseases of the Temporal Bone. Norval H. Pierce.

NOSE SECTION

11. Relation of Nasal Troubles to Catarrhal Condition of the Ear. G. W. Geiger, M.D.
12. The Etiology of Hypertrophic Rhinitis. J. A. Pratt, M.D.
13. Ventilation Rather than Drainage Essential for the Care of Sinus Disease, with Special Notes on the Antrum of Highmore. L. Ostrum, M.D.

THROAT SECTION

14. Dysphonia. R. C. Matheny, M.D.

THE SECRETARIES' CONFERENCE

E. W. OLIVER, President, Peoria.
E. B. OWENS, Vice-President, Dixon.
JENNIE LYONS, Secretary, Champaign.

1. Organization. L. H. A. Nickerson, Quincy, President of the Illinois State Medical Society.
2. A Booster Sermon. Rock Sleyster, Waupun, Wis., Secretary of the County Secretaries' Association of Wisconsin.
3. Cooperation. Alex A. Craig, Chicago, Secretary, American Medical Association.
4. Medical Jurisprudence and Malpractice. W. F. Burres, Urbana, Editor of the Original County Secretary's *Bulletin* in Illinois.
5. The Ideal Secretary. T. D. Cantrell, Bloomington, Secretary of the McLean County Medical Society.

"WAITIN' FOR THE ROBERT E. LEE"

Tuesday, May * * the twentieth,
The I - S- -M * * Society
Meets in * * Peoria
In the Shriners' Temple,
And they'll all * * attend * * the Secretaries' Conference —
All the county officers,
And editors of * * the bulletins.
There's Farrell of * * Chicago,
Watterson * * Waukegan,
Parmley * * from Marion,
Coroner Ray * * from Cuba,
Then there's Solomon * * Jones * * up here * * from Danville—
Each and every one * * a SEC - RE - TA - REE.

CHORUS

See that shufflin' throng!
Doctors * * every one;
Each has his best * * gal * * real * * pal
Down on the brand * * new levee —
Fifty thousand dol * * lar levee. And we'll
Join that shufflin' throng;
Hear that music and song;
The steamer's great * * mate,
Moonlight on the river,
All aboard the COLUM - BI - A!

There's D. G. Smith * * of 'Lizbeth,
And 'Lizbeth Ball * * of Quincy,
Cantrell * * of Bloomington,
Blankmeyer * * from Springfield —
Then there's Jennie * * Lyons * * here from * * dear old Champaign;

The "Madison County Doctor,"
Our Fiegenbaum from Edwardsville;
And Owens * * from Dixon,
Chapman * * Rock Island,
Bower * * from Galesburg,
Bennett * * of Litchfield —
Then we'll all * * hail * * the Secretaries' Conf'rence
Of the I - S - M * * Soci * * e * * tee.

E. W. O.

Correspondence

OBJECTIONS TO SURGICAL BILL NO. 467

To the Editor:—First. It provides for two separate boards of licensure where there should be but one, and there already is one.

Section 2. The principle herein promulgated is not only ridiculous, but vicious, in that it provides that no license shall be issued to any person who has not engaged in the practice of medicine for at least five years. This principle carried to the limit of possibilities (which, no doubt, it would be with a precedent established), would be about as follows: At the next session the Internists would be seeking a commission and similar law, next would come the Obstetricians, Gynecologists, Urologists, Neurologists, Dermatologists, Ophthalmologists, Laryngologists, Aurologists, Proctologists, Gastrologists, Chiropodists and so *ad infinitum*, each seeking a special board and law providing that no license shall be issued to any person to practice on any of the above-named subdivisions of the healing art who has not been in general practice for at least five years. The absurdity of a college granting a diploma to a student after five years' attendance and special study in all these branches, and stating in the diploma that the party therein named is competent to practice medicine in the full meaning of the term, and then have a special board for each of the above-named organs, saying he cannot practice the art for which he has legally and amply qualified until a further lapse of five years, is obvious.

Section 9. Is retroactive legislation, cannot be enforced and is ridiculous on its face.

Section 12, lines 3 and 4, provide that said Commission shall receive a sum not to exceed $5 for the examination of each applicant passed on by said Commission, while Section 9 provides that the 10,000 physicians now licensed to practice medicine and surgery in Illinois must come before this Commission and pay a fee of $2 if they are to continue to practice surgery. This leaves a deficit of $30,000, and no provision is made for making up the difference of $30,000 that must result from such an arrangement.

Sections 12 and 15 are in conflict with the present law in that they specify that moneys paid for fines, fees, etc., shall be paid to the Board and for the use of the Board. House Bill No. 311, enacted in the Twenty-Seventh General Assembly, says that all fees, fines, etc., shall be paid into the State Treasury.

Next, Section 14. Major surgery requires no more skill than is required in the treatment of typhoid fever, and is not entitled to a special Board of Licensure.

Section 14, further. Major and minor surgery cannot be arbitrarily defined. There is no hard and fast line of demarcation between major and minor surgery by which it can be determined where one leaves off and the other begins. Again, family physicians are less likely to underthan over-do in the practice of surgery, which is not the case with the older men who frequently lose patients from shock where three or four operations are done at one time. Inexperienced men are likely to voluntarily refer work to more experienced men. In any event, neither experience nor legislative action will bestow a surgical conscience on men who do not possess it. The latter are sometimes quite as dangerous as men who are not specially trained.

This is a special medical act and contains most all the objectionable features of any or all the Osteopathic and Optometry bills introduced into the legislature in the last ten years.

The Public Relations Committee and the Illinois State Legislative Committee have held for years, and their position has been repeatedly approved by the Council of the Chicago Medical Society, that, regardless of the methods or limitation of the treatment employed, all practitioners are alike and should rightfully be alike before the law.

In fighting vicious medical legislation these committees have flooded members, and especially prospective members, of the legislature before the primaries with literature to the effect that in Illinois there should be but one standard for practitioners of medicine and surgery, regardless of the methods of treatment; anyone complying with that standard shall be granted a license to practice by whatever method he chooses.

In the card sent out to candidates for nomination before the primaries, a pledge was asked of the candidates worded as follows: "I shall at all times support medical legislation which is not in the interest of any special cult or school of practice. I shall vote to retain in Illinois a one Board supervision over all medical matters, that the examination for licensure shall be for all alike, whether they belong to the now recognized schools of medicine or have tacked on to their names some "path," "cult" or "ism."

Your Committee reports that the whole Bill is in conflict with the law and vicious in tone. That it would establish a dangerous precedent. The Committee recommends that the Council of the Chicago Medical Society go on record as being opposed to the passage of the measure.

The Committee further recommends that the Secretary of the Chicago Medical Society send a copy of these objections to the entire membership in the medical profession in Cook County and to the members of the Judiciary Committee of the House Forty-Eighth General Assembly, and that a synopsis, together with the objections to the Bill, be published in the *Bulletin*, and that a copy of same be published in the ILLINOIS MEDICAL JOURNAL and the Homeopathic State Medical Journal.

The recommendations of the Committee were concurred in unanimously.

PUBLIC RELATIONS COMMITTEE,
CHICAGO MEDICAL SOCIETY.

COUNTY AID TO HOSPITALS

RUSHVILLE, ILL., April 15, 1913.

To the Editor:—We are trying to get a hospital for Schuyler County located in Rushville, and expect to ask the Board of Supervisors for help. Could you give me a list of counties that have helped along this line and amount given in each case? We will greatly appreciate any information along this line.

Thanking you in advance, I am

Yours respectfully,

J. C. STEINER, Sec'y.

ERRATA

WAUKEGAN, ILL., April 23, 1913.

To the Editor:—Please note "Errata" in my article in April JOURNAL on "Preventive Medicine," as follows: Page 402, line 8, humanity misspelled; line 9, Great Physician should be capitalized.

Yours truly, W. C. BOUTON, M.D.

RUSH COLLEGE PIN FOUND

EL PASO, ILL., March 31, 1913.

To the Editor:—I had handed to me this morning a gold "Rush 1897, Fiat Lux" pin, found by a track man at this place. I suggest that you advertise it in the next issue of THE JOURNAL.

Finder thinks he should have a small reward, as it is a valuable pin.

F. C. NICHOLS, M.D.

GOOD ROADS RESOLUTIONS

BLOOMINGTON, ILL., April 8, 1913.

The McLean County Medical Society at its last meeting, which was held at the City Hall at Bloomington, Ill., April 3, 1913, passed the following resolutions:

Resolved, That the McLean County Medical Society extend to the people of the state its hearty cooperation in their efforts to ameliorate, as soon as possible, this one of the many hardships to life in the rural districts, and which works a special hardship to the life of practitioners who have a rural clientele; be it further

Resolved, That the McLean County Medical Society indorse the platform of the Illinois Highway Association, adopted at Peoria, Ill., on Sept. 27, 1912; that we do everything within our power to assist the members of the General Assembly to put on the statute books of Illinois a good roads law; and be it further

Resolved, That these resolutions be published in the *Bulletin* of the McLean County Medical Society and the ILLINOIS MEDICAL JOURNAL, and that a copy of these resolutions be sent to every member of the legislature from McLean County.

Moved, seconded and carried that the resolutions be adopted.

E. MAMMEN,
C. E. CHAPIN,
J. WHITEFIELD SMITH,
Committee on Judiciary, McLean County Medical Society.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY

The April meeting of the Adams County Medical Society was held at Quincy. The attendance was good and many interesting topics were discussed.

The Osteopathic and Optometry bills which have been referred to the judiciary committee were discussed and by a motion which prevailed the secretary was instructed to write to the representatives from this district and voice the feeling of the Adams County Medical Society on said bills. Each one present felt that as a society and as individuals, we should do all in our power to prevent the passage of these two bills.

The resolutions on "good roads" offered by the Chicago Medical Society were adopted by a unanimous vote. A committee on resolutions on the death of our late member, Dr. J. B. Shawgo, was appointed. Those comprising the committee are Drs. Christie, Koch and Stine.

The feature of the afternoon was a paper by Dr. John A. Koch on "The Dry Treatment of Leukorrhea and Cervical Erosions." The doctor has traveled abroad several times and it was while on his last trip that he heard of this treatment. He uses it extensively in his practice and is very well satisfied with the results. We feel very grateful to Dr. Koch for this new treatment. After the discussion we adjourned.

BOND COUNTY

The Bond County Medical Society held its annual meeting in the Court House at Greenville, Ill., Jan. 9, 1913. After reading of minutes and report of officers, the election of officers took place when the following were elected for the ensuing year: president, H. D. Cartmell, Greenville; vice-president, O. C. Church, Woburn; secretary-treasurer, E. S. Clark, Greenville; board of censors, E. A. Glasgow, Mulberry Grove, A. M. Keith, Greenville, J. C. Wilson, Greenville.

PROGRAM

"Shall We Bid on Township Pauper Practice." J. C. Wilson. Discussion, Drs. Brown and Wilson.

"Syphilis." B. F. Coop.

"Shall We Do the Practice of Ministers Free?" K. B. Luzader. Discussion, Drs. Cartmell and Chittum.

"What Shall We Do with Members Who Cut Prices?" O. C. Church. Discussion, Drs. Coop and Glasgow.

The Bond County Medical Society held its meeting April 24 in the supervisors' room in the Court House at Greenville. The following program was rendered: "Treatment of Rabies," Dr. O. C. Church. "Prevention of the Spread of Contagious Diseases," Dr. E. S. Clark. "The Relationship of the Quarantine Laws to the Medical Profession from a Legal Standpoint," John D. Biggs, states attorney.

CASS COUNTY

The following officers were elected at a meeting of the Cass County Medical Society held April 8, 1913: president, D. S. Gailey, Ashland; vice-president, W. S. Taylor, Ashland; secretary-treasurer, J. A. McGee, Virginia; delegate J. G. Franken, Chandlerville; alternate, C. M. Hubbard, Virginia.

CHAMPAIGN COUNTY

The March meeting of the Campaign County Medical Society was held in the Commercial Club Rooms at the Hotel Beardsley, Champaign, Ill. Dr. George T. Palmer, president of the health department of Springfield, spoke on "The Diagnosis of a Sick City." He described the sanitary provisions that are in use in Springfield, and the sanitary survey perfected by his department there. Following this address a short business meeting was held for which twelve of our members remained.

Dr. V. C. Morton was received by transfer from the Peoria City Medical Society. Eight applications for membership were read: Drs. Honn and Branyan of Champaign, Munsell of Urbana, Harris of Ogden, Ricketts of Ivesdale, Brayshaw of Homer, Casto of St. Joseph and Bundy of Sadorus. These applications, when the formal blanks have been signed and returned, will be considered by the censors and will be ready for the society's vote at the April meeting. Certain phases of the ethical code were informally discussed.

CLARK COUNTY

Society met at the New Archer House, Marshall, Ill., April 10, 1913, at 2 p. m., after a sumptuous dinner furnished by the Marshall doctors for all the members.

Members present: R. H. Bradley, Burnside, Johnson, S. C. Bradley, Prewett and Weir.

L. J. Weir read a paper on "Diseases of the Kidney," closing with the following summary: 1. The work of the kidneys necessarily exposes their delicate tissues to many and varied irritations and infections.

2. Well marked or usually very vague clinical symptoms lead to the repeated urinalysis, showing albumin, casts and (or) a discrepancy in the amount and specific gravity of the urine, which urinalyses give the most reliable information in regard to the condition of the kidneys.

3. The kind or amount of kidney involvement is of lesser importance, the main question is, can the remaining kidney structure perform their function sufficiently well.

4. The final treatment of nephritis will be like that for consumption and many other diseases, prevention, but in the presence of the active inflammation we secure comparative rest to the kidneys and eliminate by other organs.

A thorough discussion followed, participated in by each member present. A motion was made and adopted creating a standing committee to cooperate with the Red Cross medical work, consisting of the president and secretary ex-officio and three members to be appointed by the president.

Officers for the ensuing year were elected as follows: President, J. Y. McCullough; vice-president, L. A. Burnside; secretary-treasurer, L. J. Weir; delegate, S. C. Bradley; alternate delegate, L. J. Weir.

The secretary-treasurer made a report for the past year as treasurer: Received of former secretary-treasurer, $36.90; purchased stamps, $3.00; balance in treasury, $33.90.

As secretary: Number of meetings, 6. Names of members and number of meetings attended by each: H. V. Anderson, 1; R. H. Bradley, 2; Joseph Hall, 2; G. W. Prewett, 3; G. T. Rowland, 3; B. A. Rynerson, 0; J. Y. McCullough, 5; S. W. Weir, 3; S. C. Bradley, 5; T. H. Lewis, 2; L. J. Weir, 6; W. W. Bruce, 4; E. M. Duncan, 2; R. B. Boyd, 2; L. H. Johnson, 5; Edward Pearce, 4; J. W. Marlowe, 3; P. P. Haslitt, 5; S. A. Smith, 2; D. L. Wilhoit, 1; R. A. Mitchell, 5; L. A. Burnside, 4. Number of visitors, 7; largest attendance, 15; smallest attendance, 8; average attendance, 12.

The program committee report was read, discussed and adopted as the program for the ensuing year. Program of the Clark County Medical Society from June 12, 1913, to April, 1914:

June 12, 1913, Casey, Ill.—Subject, "Metastatic Infection," Dr. F. Buckmaster, Effingham, Ill. Discussion, L. J. Weir.

Aug. 14, 1913, Martinsville, Ill.—Subject, "Typhoid Fever," S. C. Bradley. Discussion, E. M. Duncan.

Oct. 9, 1913, Martinsville, Ill.—Subject, "Infectious Diseases of the Urinary Tract," J. C. R. Wettstein. Discussion, P. P. Haslitt.

Dec. 4, 1913, Casey, Ill.—Subject, "Influence of Acute Colds on Respiratory and Intestinal Mucosa," D. L. Wilhoit. Discussion, T. H. Lewis.

February, 1914, Marshall, Ill.—Subject, "Prevention and Spread of Contagious Diseases," L. H. Johnson. Discussion, G. T. Rowland.

April, 1914, Marshall Ill.—Subject, "Dislocations of Elbow and Shoulder Joint," L. A. Burnside. Discussion, L. A. Burnside.

Society adjourned. L. J. WEIR, Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, March 19, 1913

A regular meeting of the Chicago Medical Society was held March 19, 1913, with the following program:

1. "Drainage of the Upper Intestinal Tract (Jejunum) in Paralytic Ileus." C. Hugh McKenna.
2. "The Value of Blood-Pressure Determination in Obstetrics." Frank W. Lynch.

Regular Meeting, March 26, 1913

1. "Demonstration of the Intravenous Administration." W. T. Mefford.
2. "The Rationale of Salvarsan Treatment." E. A. Fischkin.
3. "Neosalvarsan." K. A. Zurawski.
4. "The Wassermann Reaction." Frederick Baumann.

Regular Meeting, April 2, 1913

A regular meeting of the Chicago Medical Society was held April 2, 1913, with the following program:

1. "The Present Status and Limitations in the Use of Tuberculin." John Ritter.
2. "Tuberculin in the Treatment of Tuberculous Adenitis." John F. Golden.
3. "The Scope of Tuberculin." Robert Zeit.

Regular Meeting, April 9, 1913

A regular meeting of the Chicago Medical Society was held April 9, 1913, with the following program:

1. "Enteroptosis, Etiology and Treatment." Alex. C. Wiener.
2. "Scalp Wounds: Surgical Treatment." Charles H. Parkes.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY

Regular Meeting, Dec. 17, 1912

A regular meeting was held Dec. 17, 1912, with the president, Dr. Joseph C. Beck, in the chair.

PRESENTATION OF CASES

Dr. Charles H. Long reported a case of atresia of the external auditory meatus due to furunculosis, of which a detailed report will be given at a subsequent meeting.

NASAL TUBERCULOSIS: RECOVERY

Dr. Otto T. Freer reported the case of a woman, aged 59 years, first seen May 28, 1912. At that time the affection had existed for five years. The symptoms consisted of nasal stoppage, with complete obstruction of the right nostril and partial closure of the left. Scabs formed on the septum and were cast off

and reproduced. In 1910, as the result of an examination of microtome sections in the laboratory of the University of Virginia, the condition was declared nasal tuberculosis. The nose was then repeatedly cauterized and the disease seemed checked, until the symptoms returned in March, 1911. The diseased area was again cauterized with nitric acid and the galvano cautery, and a perforation formed in the septum.

Examination of the patient showed exuberant granulations on both sides of the cartilaginous septum, these granulations nearly filling a perforation which lay about one-half inch above the nasal floor and in a vertical line with the anterior nasal spine. The anterior inferior part of the septal cartilage was softened so that the nasal tip could be readily depressed with the finger. Following the alar, cartilage granulations lined the external nostrils. There was a granulating area which covered the anterior end of the right inferior turbinate and an area of the septum opposite it.

On account of the involvement of the external nose, the condition seemed inoperable without great disfigurement, so the patient was referred to Dr. Adolph Hartung for x-ray treatment twice a week. A specimen was also excised from the border of the perforation and declared by Dr. Maximilian Herzog to be tubercular. Under the influence of the x-ray the granulations disappeared from the external nares and from the perforation in the septum, and the softening of the cartilage ceased to progress. The granulating areas on the inferior turbinate and the septum further back were not influenced, however, because of their depth in the nose, so that on June 8, 1912, the right inferior turbinated body, which was tubercular throughout and was softened into a mass of spongy granulations, was extirpated, while the area opposite it on the septum was cut away to the bare cartilage and bone. Healing took place rapidly, and at the present day, December 23, all evidence of disease has disappeared from the nose.

The history of this patient shows that an inoperable case of nasal tuberculosis may be brought into a condition where operation is possible by the use of the x-ray. Its effect in this case confirms the experimental findings of Professor Brünings of Jena, who proved, after producing inoculation tuberculosis in the larynges of animals, that the x-ray is more effective in the treatment of local tuberculosis than intense light.

Dr. Freer also referred to a case of nasal tuberculosis in which he had extirpated the entire ethmoid labyrinth on the right side, the right middle turbinate, a large portion of the covering of the septum on the right side and a tubercular tumor from the posterior border of the vomer in 1907, the patient making a complete recovery. (This case was reported in the *Annals of Otology, Rhinology and Laryngology*, March, 1910.)

TOTAL RESECTION OF SUPERIOR MAXILLA FOR CARCINOMA

Dr. Joseph C. Beck presented a fresh specimen of a case of total resection of the superior maxilla for carcinoma, beginning several months ago as an epulis. The patient was a man, aged 44 years, otherwise in a healthy condition; there were no glands in the neck as yet infected with cancer. Preliminary exposure and compression of the external carotid artery was performed. The typical Langenbeck operation, with few modifications, as curetttement of the ethmoid cells, was carried out. The anesthetic was ether by vapor, carried down into the larynx. There was very little bleeding present. A large defect of the cheek remained, owing to carcinomatous involvement of this structure. The patient was returned to bed in good condition. The gross specimen shows clearly on section the presence of carcinoma, and a previously excised piece on microscopic examination also proves it to be an alveolar carcinoma.

The point Dr. Beck wished to make was that all these carcinomata should be operated on, especially so long as a patient is in good general condition, and especially if the glands in the region are not metastatically involved; and if they are, they should be removed *en masse*. The mortality is great, recurrences frequently occurring, but if only one case in every twenty-five is saved, it may be said to be a percentage of 100, since without operation they all die.

TECHNIC AND AFTER-TREATMENT OF RESECTION OF THE SEPTUM WITHOUT PACKING

LOUIS OSTROM, M.D.
ROCK ISLAND

The author prefers to have the patient sitting up during the operation. There is less bleeding and the patient can assist in blowing his nose, etc. He is less fatigued with the patient upright than when operating with the patient in the recumbent position, and the position seems more natural. The average time required for the operation is forty-five minutes, including preparative operation and immediate after-care. Many cases have been completed in fifteen minutes; some few cases have taken two hours.

Time of Operation.—Usually between 7 and 9 a. m., so that the patient may have a full meal in his stomach; the general effect of the cocain is less disagreeable, and if anything should arise demanding our attention, all day is at our disposal.

Anesthesia.—Flake cocain is used alone, applied three or four times in small quantities, until the tolerance of the patient becomes manifest. When the patient is fully anesthetized and not sick from cocain, and everything ready for the operation, adrenalin is used. In all his experience he has had practically no bleeding during the greater part of the operation, unless adrenalin was used too early. It takes a little longer to get started, but saves time in the end.

Technic.—The primary incision is made about vertical, one-third to one-half inch long, pointing down toward the middle of the incisor crest. This primary incision in the mucous membrane is made at right angles to the surface. The elevation of the mucous membrane is made by first scraping or pushing the perichondrium from the cartilage, so that the cartilage is distinctly visible within the primary incision. The mucous membrane is then elevated backward above the vomerian crest and up to the upper border of the deflection. With his right-angled elevator (made for him by Ermold of New York in 1903), he elevates the mucous membrane up to the roof of the nose below the bridge and forward to the primary incision. The primary incision is then extended upward to near the roof of the nose, then down to the incisor crest and cut about one-eighth inch across the floor of the nose down to the bone (Mankauer). The periosteum above, below and over Jacobson's cartilage is separated from the bone and cartilage with Stevens' dull-pointed tenotomy scissors bent on the flat, the points of which hug the bone and cartilage and cut the fibrous tissue connecting the periosteum to the sutures at the incisor crest in the region of Jacobson's cartilage. This dissection with Stevens' scissors is continued backwards to the posterior end of the incisor crest, when a dull, narrow elevator can elevate the mucous membrane on the floor of the nose adjacent to the septum, then upward on the septum up to angle of deflection on to vomerian crest. The mucous membrane over the crest or ridge, or spine, is then elevated from behind forward, or this process is left until the bony septum is cut above and below. The edge of a sharp ridge can be cut off with Stevens' scissors and left adherent to the mucous membrane, thus avoiding tedious dissection and possible perforation.

The incision in the cartilage is about one-sixteenth of an inch back of the incision in the mucous membrane, but in the same general direction, but an angle of 45 degrees to the plane of the septum, and only about one-quarter to one-third inch long. One finger is placed in the opposite nostril behind the incision, and pushes on deflection so that the incision in the cartilage gapes.

The point of a blunt-pointed elevator with the tip bent on the flay is pushed into the incision of the cartilage, and while pushing against the cartilage anterior to the incision with the bend or heel of the elevator, the tip is directed against or toward the cartilage of the septum (never against or toward the mucous membrane), and as soon as the tip of the elevator disappears from view the finger in the concave nostril feels the elevation. At this point ocular inspection must

take place to be sure that the septum was not perforated, cut or torn. The elevator is then pushed backward, elevating the mucous membrane backward, up and down as much as it can. The author's right-angled elevator is then used to elevate the mucous membrane from behind forward, first above, then below, down to the floor of the nose. The incision in the cartilage is then prolonged upward to one-quarter inch from the bridge of the nose and downward to the crest. Remembering that the fibers connecting the vomerian sutures to the periosteum and perichondrium run out and back, by pulling forward these fibers guide the instrument in against the bone, and no matter how scarred or adherent or grooved the concavity of the septum may be, the right-angled elevator separates the mucous membrane from the bone and sutures, away down to the floor of the nose, as far forward as the anterior end of the incisor crest, with no likelihood of perforation.

Ballenger's swivel knife is used to cut the cartilage above, accurately guiding it to cut upward parallel to the bridge of the nose, one-third inch from the upper border of cartilage of septum or bridge of nose. The rest of the cartilage is removed in one sweep. The bony septum is removed with Killian, Grunwald or any other forceps or punches which one may prefer. The maxillary crest is removed with gouge, chisel or punches.

Usually two black silk sutures are placed in the mucous membrane, one in the middle and one at the angle on the floor. A plug of cotton dipped in paraffin-vaselin is placed over the incision. This can be removed and renewed as desired.

CONCLUSIONS

1. Hematoma does not occur if there is free drainage, and all blood will escape from septum in from two to five days, usually after the third day.
2. In case of infection, drainage is already prepared for. He has had no infection of the septum.
3. Hemorrhage cannot take place unless the mucous membrane is so mutilated that an open wound is produced.
4. Packing cannot be placed uniformly on the septum; usually the upper one-half or one-third is never packed. (His observation at all clinics and numerous operators.)
5. Pain follows removal of packing.
6. Hemorrhage may take place when packing is removed, compelling repacking.
7. General sinus infection and severe pain usually follow packing.
8. Mucous membrane of turbinates may be injured by pressure from packing, and especially on its removal.
9. Hematoma often occurs after removal of packing.

DISCUSSION

Dr. E. Fletcher Ingals is not in sympathy with removing so much of the septum as is usually done. If bone and cartilage were not needed, they would not have grown there in the beginning. The idea of removing as much of the bone as possible without having the nose fall in is a mistake. The less bone removed, the better for the patient. He had seen many patients on whom this had been done, but he could not recall any in whom there was a firm septum. He thinks that usually if the bent portion of the septum above the most prominent ridge of the spur is retained, it is much better for the patient. In very many cases this portion of the septum is nearly half an inch in width; it can be taken out much more easily than it can be retained, but he thinks it better for the patient to leave it. The same principle should apply to the cartilaginous septum. He thinks that usually much more of it has been removed than necessary.

Regarding the author's results from not packing, they seem to have been excellent. Dr. Ingals thinks that packing, in the majority of cases, is a necessary means of safety. If no opening whatever is made through the mucous membrane on either side except the one directly in front, he has no doubt that clotting will usually, perhaps always, stop the hemorrhage, unless the patient happens to be a bleeder.

Dr. Ingals then stated that he wished to present to the society an efficient and easily removable nasal packing, for, notwithstanding the fact that many patients who have suffered operations in the nares might go to their homes without packing and escape serious hemorrhage, yet in many bleeding that alarms the patient comes in spite of the packing. In a considerable number, bleeding that is alarming to the surgeon comes on, and in a few fatal hemorrhage has occurred; therefore, he believes that for many reasons careful packing of the naris should be made in most cases after cutting operations on the septum, turbinated bodies or accessory sinuses. Sometimes packing is required after the removal of mucous polypi, but usually it is not necessary when only a snare has been employed. While in a large number of cases, without packing, no serious hemorrhage would occur after the usual operations, it cannot often be desirable to waste even 2 to 4 ounces of blood. General surgeons prevent all bleeding if possible, and their reasons for doing so would largely be valid in intranasal surgery; therefore, he cannot think we are justified in subjecting patients to the risk of bleeding. Usually bleeding would not occur for several hours after the operation; then, if the patient had gone home, he would at least be likely to be greatly alarmed. It seems to him unfair to subject the patient to this distress, aside from the first injury resulting from the loss of blood. If there were no other reasons for packing, the peace of mind and comfort of the surgeon make it well worth while. Often the parts are in such condition that packing is necessary to hold them properly in place.

He has known of several very alarming hemorrhages after intranasal operations, in which the patient's life was saved only by prolonged and persistent treatment, much of it very painful to the patient, and he has known of two or three fatal results. One of these occurred in his own practice, the patient dying from the effects of secondary hemorrhage, although he had stopped the flow thirty-six hours before this sad termination.

The only objections that he can see to packing of the nares after cutting operations are (1) obstruction of respiration; (2) pain from pressure; (3) prevention of the escape of pus, and (4) pain from removal.

The obstruction of respiration cannot be considered a real objection because usually the patient has already become accustomed to this inconvenience, and even if packing were omitted, swelling of the tissues resulting from traumatism would usually stop the naris.

Pain from pressure is a serious objection if the packing is too firm. The surgeon's experience must guide him to get the right amount of pressure; and he should make provision against pain by suitable analgesics. He is accustomed to give the patient 5 or 6 doses of 5 grains each of phenacetin, directing one every hour for four or five hours, if required for pain. At the end of this time, if the pain is still troublesome, or if the patient is nervous, as he is likely to be from the cocain, he gives him half a grain of codein, and has the dose repeated in two or three hours, if needed.

Purulent discharges after operations for infected sinuses will almost necessarily occur, and if the naris is firmly packed, the pus may be forced back, so as to cause infection of other parts. This danger cannot altogether be avoided, but it should be guarded against by removing the packing as soon as the danger of hemorrhage has passed. Usually the packing may safely be removed within from sixteen to twenty hours.

Pain caused by removal of the packing is by far the most serious objection to its use. To avoid this, various methods have been adopted, most of which fall very short of the desired result, as can be appreciated only by those who have themselves suffered from the operation. The same remark would be applicable to the dressing after a large percentage of operations, and he feels that there is no one thing in which surgeons are so remiss as in their failure to prevent suffering at such times.

He has tried many different dressings after intranasal operations designed to prevent secondary hemorrhage and avoid pain at the time of their removal. The

most satisfactory one is made of rubber sponge, the form of which is peculiarly adapted to favor coagulation of blood. It is made of rubber sponge, preferably about 4 cm. thick, and from 5.5 cm. to 8 cm. long. In preparing the packing the sponge is grasped tightly and compressed between the blades of a long strong forceps, like Pean's hysterectomy forceps, 10 inches long, or like the speaker's straight esophageal forceps. The blades are closed tightly as possible, and locked by the catch on the handles. Then the sponge is trimmed off with scissors close to the blades. When the blades are opened, the sponge at once expands, and we have a piece of rubber sponge which should have been cut to about 2 mm. greater in thickness than the extreme width of the naris we wish to pack, while the tissues are shrunken down with cocain and epinephrin. The edges of this piece are trimmed down so that it will fill the naris vertically, and when there is fear of hemorrhage far back, the distal portion of the sponge should be left about 2.5 cm. longer and about 5 to 8 mm. less in height (width). This is done so that this portion, after being pushed through the naris back to the pharyngeal wall, can be drawn forward to plug the choana. For this purpose the whole piece should be about 8 cm. long, whereas if only the naris requires protection a piece 5.5 cm. in length will be long enough. It is important that this sponge be not too thick, otherwise, in spite of its softness, pain will be caused by the constant pressure that it will exert. The sponge having been fashioned to fit the naris, a strong linen thread is passed through from above downward, about 1.5 cm. back of its proximal end, and the two ends of this thread are tied together, so as to form a loop about 4 cm. long, by which the sponge may be withdrawn. To prevent the sponge from being torn apart in removal, a similar thread is sewn through and through from before backward at the upper and lower part of the packing, and this is tied in front of the thread passed vertically in forming the loop for extraction. Thus prepared, when the loop is pulled on, all the sponge will have to come with it. When it is desired to plug the choana more carefully, the long piece of rubber is used. A strong thread is passed through the sponge about 4 cm. in front of its posterior end. This is then fastened to the posterior end near one edge, and by sewing over and over along the posterior end to near the other edge when the thread is carried forward and through the sponge at the same distance from the posterior end as the other end of the thread. The two ends of the thread are then tied together, forming a loop about 7 cm. long, which, when pulled on, will double the back end of the sponge on itself and draw it into the choana. When the packing has been made ready, it is rolled up, compressed tightly and immersed and allowed to expand in a strong solution of formalin. While thus immersed it is alternately compressed and allowed to expand until the solution has permeated every part. It is then allowed to soak in the solution until fully sterilized and then is washed thoroughly in sterile water. It is then ready for use. In introducing this packing it is grasped firmly between the blades of a strong forceps shaped like the ordinary ear forceps, but the blades should be about 4 inches long and there should be a catch to hold them together until the surgeon is ready to detach them. The mucous membrane is then smoothed down and long thin spatulas introduced on both sides of the naris to prevent too much friction as the sponge is crowded in. With the forceps the packing is then pushed back as far as desired, the forceps are released and the sponge expands to its full size. Something is then placed against the anterior end of the sponge to prevent it from being pulled forward and the forceps and spatulas are withdrawn. It is usually best to push the sponge back somewhat farther than it is to be left, and later draw it forward to the desired position. A pledget of cotton is then placed in the nostril and the patient may go home confident that there will be no serious bleeding. If it has been a case where the choana was to be specially packed, while the sponge is held back by something pressed against its anterior end, the longer loop is pulled on, whereby the posterior end of the sponge is doubled on itself and drawn into the posterior naris. After fifteen or twenty hours this packing may be withdrawn, often with no pain, and always with much less than caused by other packings that he has tried. When for any reason a large packing has been put in and traction on the loops for removing

it causes pain, the patient may be given a few whiffs of chloroform or some other anesthetic, and then the packing can be pulled out quickly. For this purpose he uses chloroform in the following manner: In the bottom of a 2-ounce, wide-mouthed bottle he places a sponge that will about one-third fill it, and on this pours a dram of chloroform. The patient holding this in his hand places the mouth of the bottle between his lips and breathes deeply at the rate of about thirty respirations per minute, until he begins to feel the effects of dizziness or a sense of losing himself. Then the surgeon, who has hold of the loop, pulls the sponge out in about a second, without causing pain. The patient immediately recovers from the chloroform. There is no possible danger from using chloroform in this way for the patient would drop the bottle before becoming unconscious or taking too great a dose. Holding the bottle in the hand in this way warms the chloroform and assists in its rapid vaporization.

In cases when for any reason he has had reason to fear hemorrhage, he has rubbed on those portions that would come in contact with the wound a powder consisting of quinia urea hydrochlorate, 1 pint, acid gallic, 1 pint, and acid tannic, 3 parts. This causes a clot firmly adherent to the mucous membrane and also enmeshed in the rubber so that withdrawal is apt to cause pain, unless some anesthetic is employed, but it may be pulled out quickly. He thinks that it is seldom necessary to use the astringent powder and that the patient is more comfortable without it, nevertheless, in those predisposed to hemorrhage he would highly recommend it.

Dr. Otto T. Freer said that Dr. Ostrom's method of operating was simply the well-known Killian operation, with slight modifications. To enter the intricate and distorted anatomy of a septal deflection through a little cut, one-third of an inch long, as Dr. Ostrom did, was to make the submucous resection a blind operation in a field where minute vision is needed to avoid disaster. It is impossible in deflections at all extensive to do a thorough resection without an open operative field, and Dr. Freer had removed many bony deflections from patients for whom a submucous resection attempted previously by others had consisted of the cutting out of a piece of cartilage with the swivel knife through a buttonhole cut of the type advised by Dr. Ostrom, the operator, through this inadequate entrance, having been unable to take away the bony part of the deviation which kept the nostril as much blocked as if nothing had been done.

Dr. Freer did not recognize in Dr. Ostrom's description of the anatomy of deflections the conditions he had encountered in his resections and regarded the ignoring of anatomical facts of importance by Dr. Ostrom as proof that the blind mode of operation he had been following had not shown them to him. For instance, he made no reference to the frequent traumatic deflections with two or more separate fragments forming distinct cartilaginous plates of a sharp-angled deflection. A fibrous bridge passes from naris to naris between such fragments, and, by uniting the perichondrial covering of both sides of the septum, makes it impossible to pass the barrier formed by such a bridge without a sharp blade. Dr. Ostrom has advised the elevation of the coverings with a dull elevator moved from behind forward. This elevator would be arrested by the obstacles referred to, nor could it with safety be replaced by a sharp blade, if employed through a buttonhole cut. The dull elevator would also be ineffective in the many cases where inflammatory changes in the mucous membrane of the septum have left broad areas of intimate union between toughened cartilage and thickened perichondrium. These areas are never discovered until the denudation is under way and sometimes include nearly all of both the convex and concave sides of the deflection. In such cases the denudation is one continuous dissection, and a dull elevator has no place. Dissection, however, requires an open operative field.

Dr. Ostrom does not mention the overlapping of the vomer by the cartilage in the vomero-cartilaginous articulation, nor the crossing of the blended periosteum and perichondrium from naris to naris in this articulation, a condition repeatedly described by Dr. Freer, and one which makes dull denudation downward below this articulation impossible.

Dr. Ostrom speaks of the "anterior tip" of the septal cartilage and of the "anterior ridge." There are no such anatomical designations and it is impossible to tell what Dr. Ostrom meant by them.

In regard to the removal of the bony part of the deflection, as described by Dr. Ostrom, Dr. Freer would have found himself quite helpless with the weak instrumentarium displayed by Dr. Ostrom in the face of the many massive bony deflections he had encountered. He had often taken away the anterior half of a deflected vomer half an inch thick and vomero-ethmoidal angles one-third of an inch in thickness. Such solid deflections have to be over- and under-cut, as shown in Dr. Freer's last article on the submucous resection in *The Journal A. M. A.*, 1912. Unless these bony angles are severed from the perpendicular plate above with punch forceps, the attempt to break them out in the manner described by Dr. Ostrom is dangerous and liable to create fissures in the perpendicular plate which may extend through the sphenoidal sinus to the optic foramen, with resulting blindness in the eye involved, as happened in a case described by Prof. Bernhard Fraenkel of Berlin.

For denuding the incisor crest and anterior part of the vomer, the so-called "ridge" of its periosteum, the delicate scissors shown by Dr. Ostrom seemed peculiarly inappropriate, for these rough, bony parts are covered with a periosteum so clinging that they can only be shelled out of their covering by the use of the raspatory designed by Dr. Freer, after the periosteum has been split to the bone with a strong knife. To do this, however, again implies an open operative field, for it cannot be done in the dark.

Dr. Ostrom attributed to the minute cartilaginous remnant of Jacobson's organ an anatomical importance it does not possess. It takes no part in the creation of deflections.

Dr. Ostrom's advice, not to pack after operations on the septum, is not new. It has often been given in past years by those who like to startle by boldly contradicting the teachings of the experienced, and who advance such advice as progress while in reality it is retrogressive, discarding of what has been learned by the painful experience of the profession. The objection to such advice is that its authoritative tone is apt to mislead the beginners in the specialty into a disregard of common prudence. Why do rhinologists continue to pack, in spite of these innovators? Because neglect to insert the tampon in some case where it did not seem needed, because of absence of bleeding immediately after a submucous resection, was punished by a severe hemorrhage two hours after, when the contractile effect of the cocain and adrenalin on the vessels had passed away and left them open and paretic. Packing had to then be done under most difficult conditions, with the disturbance of the wound and the chance of operating in a nose full of clots. The severe nose-bleeds occurring spontaneously from little vessels on the septum should show how dangerous it is to leave any cut vessel uncompressed in the nose until it has regained its contractility and is effectually closed. Where the buttonhole cut is used there is also danger of bleeding between the coverings of the deflection removed. Several patients operated on by others through a buttonhole cut have come to Dr. Freer with large hematomas formed in this manner and blocking both nares. In two of these abscess of the septum occurred. These hematomas could have been prevented by proper packing.

Dr. Freer's layer packing is made of strips of Johnson and Johnson's sterilized lint, cut into strips one-third of an inch wide, with sharp shears, and impregnated with powdered subnitrate of bismuth. The bismuth keeps the tampon aseptic and has been used by Dr. Freer for twelve years. In one case, a bleeding polyp of the septum, he left the tampon in for ten days without its becoming putrid. An iodoform tampon will begin to smell in twenty-four hours. To insert the tampon the nostril is held open with two of Dr. Freer's septum retractors, one, a long one, being used to guard the site of the operation. A strip is then folded on itself in the middle, stretched taut on a long dull elevator and carried back to the posterior naris when it is tamped down on the nasal floor. A second strip is inserted in the same manner and placed on the first. In this way layer after layer of

parallel strips are laid in the naris until it is filled to the top. This tampon completely closes the choana by filling the space between the nasal floor and body of the sphenoid bone; it is elastic, and evenly, without unequal pressure, applies itself to all inequalities of the nasal interior. It causes no distress and keeps the flaps in place and it gives absolute assurance that hemorrhage of moment cannot occur.

The tampon is removed in part in twenty-four hours, those strips being out which are in contact with the outer nasal wall or other strips. The strips immediately applied to the wound are left in for a day or two longer, until they have become non-adherent. As the tampon stays perfectly pure, there is no harm in leaving them, especially as the nostril should not be used for breathing for a week at any rate.

No clamp, such as has been advocated of late for the submucous resection to take place of the tampon, can give the even, reliable pressure of the latter. Clamps are apt to slip, to press too much or too little, and are about as treacherous as the clamp used to control tonsillar hemorrhage, in respect to assuring a continuous stoppage of bleeding. A patient with a good tampon after a submucous resection does not need to stay in a hospital, but may be sent home—a great advantage, for most of them dislike the idea of a hospital. To leave a patient unpacked in a hospital with the chance of an intern, inexperienced in nose work, having to pack the furiously bleeding nose of an excited patient, does not seem wisdom to Dr. Freer, as perforations and injury to the wounded parts are liable to occur.

Dr. Detrick T. Vail, Cincinnati, said that when the submucous operation for removing the cartilaginous septum was first written about he came to Chicago, in order to see it done and to study the indications for the operation. In his work previous to that time he had never found cases that seemed to require the removal of the cartilage. The most that he did was an Ashe, a Row or a Gleason operation, but after his visit to Chicago he had entirely different ideas regarding the matter, and felt that it certainly was vastly better to remove the cartilage submucously. Moreover, he was convinced that it was a very troublesome and disagreeable thing to have even a bowing of the cartilage and that the proper thing was to take out every cartilage that was not straight and in the median line. So he began to do this in many cases and with beautiful results. In time he became convinced that the operation was necessary, excepting in certain rather exceptional cases. He still does the operation and likes it very much in these selected cases, but he does it in perhaps only 10 per cent. of the cases that he did it previously. Not that he had any disagreeable results or experiences with it, but simply because he could not morally feel that he was doing the right thing in subjecting the patient to this operation, excepting in cases of marked deflection, causing or nearly causing atresia.

What better operation is there in the simpler and more common cases where there is a bowing of cartilaginous septum and some restriction of breathing on one side or asthmatic symptoms? He uses a small, sharp saw—a Holmes or Pynchon saw—and removes the bony ridge and spur, regardless of the sacrifice of mucous membrane. In conjunction with this he always does what he calls a "posterior inferior turbinectomy." He leaves the anterior part of the turbinal body alone, because he feels that under climatic influences it has a great deal to do with the physiology of the nose in a protective sense. But he saws off the entire posterior part of the inferior turbinate, to which is always attached in these cases a mulberry-like hypertrophy, the so-called "posterior hypertrophy." At the same time he snares off through the nose the mass of adenoids that almost invariably exists, not so much in the vault of the pharynx as in a vertical mass down the sides of the pharyngeal wall like an exaggerated fold. This adenoid fold exists there because the aeration has been faulty and to remove it he passes the wire snare back through the nose until the end of the cannula of the snare impinges on the basilar process of the occipital bone, the wire loop descending on the posterior wall of the pharynx and then engaging the adenoid mass in the loop of the snare by drawing the wire slowly home it is snared off. This operation

gives the patient a good nose, better, in his judgment, than the best submucous operation in these cases. He has not seen this method described by any rhinologist and considers it a valuable one.

Regarding nasal packing after a submucous resection of the septal cartilage he has tried the sponge packing as described by Dr. Ingals, but not with the same fine technic which he admires. But in his hands it was entirely inadequate. He found it so because he could not get an equal distribution of pressure over the operative field. He believes in packing, not because of the danger of hemorrhage, but for an entirely different purpose—a purpose which was not mentioned by the essayist, namely, in order to have perfect approximation of the bases of the perichondrium of the two sides. He always packs the narrow side of the nares only, that side in which the breathing space was restricted, and he uses ordinary loose-mesh sterile gauze, previously cut in long strips and rolled like a little bandage. He always keeps a number of them on hand, all sterilized and kept in a glass jar ready for use. The gauze roll is moistened before using, which contributes to neat packing. Ordinary packing forceps are used. He only packs the side of septum convexity; he does not pack both sides for fear of sloughing. The parts have already been wounded and there is a certain amount of thrombosis of some of the septal veins, and if the nares were packed too tightly on both sides, necrosis might result. The packing is only left in place for twenty-four hours.

He quite agreed with the essayist in his ideas which were progressive. The day of packing and leaving it in for as long as four days is passed.

Regarding hemorrhage in submucous cartilage resection, he has never had much experience with it. There are no blood-vessels cut if the dissection has been properly done. Someone spoke of "delayed hemorrhage"—hemorrhage that occurs a week or ten days after operation. What does delayed hemorrhage mean? Delayed or secondary hemorrhage means wound sepsis and nothing else.

Dr. A. M. Corwin said he was entirely open-minded with regard to the statement that an extensive septal operation, such as this is at times, can be done without packing, but on that point he was from Missouri. He had no reason to doubt the doctor's statements as to his results, but his own experience has been in accord with Dr. Freer's, that hemorrhage does occur occasionally, and for this packing is indicated. Furthermore, we operate on no other part of the body practically without dressing the wound, and we see no reason why we should make an extensive opening in the mucous membrane, cut away bone and cartilage, producing two loose flaps of membrane and perichondrium, and leave the wound unprotected against infection. The only case of abscess of the septum following resecting that he had ever seen after his own operating was in the case of a patient with a perfectly clean nose, packed and everything normal, who became nervous and dragged away the packing and left the wound open. An abscess of the septum developed at the site of the resection and greatly increased her suffering and the danger and delay in healing. Moreover, there is no harm in packing, if done properly, while hemorrhage and infection may occur without it; therefore, the argument is in favor of packing.

He has found in the past few years the use of a little gauze roller bandage and camphorated vaselin has been very satisfactory for this purpose. He cuts these strips of gauze, which are one-quarter inch wide, into 2- or 3-inch lengths and boils them in the vaselin in a small crucible at the time of operation. This is cooled off by the time the operation is finished. These little pieces of gauze thus saturated are then packed carefully into the nose, one of them having been spread over the septal wound. These are left in practically until the second day. Then two or three pieces are removed. Each day following a few pieces are taken out at a time. There is no pain at all from removing them. This seems to him a very good way of packing, as he can take out what he wants and leave what he wants, without dragging on long unmanageable strips. The speaker believes that any man who does a radical operation on an inferior turbinate and does not pack is almost certain to have hemorrhage, often profuse, sometimes serious, and he understands the writer to say that he employs little or no packing in such cases.

There were many points he would like to go into, but believed that we should accentuate the proposition that we should treat a nasal wound as far as possible in an aseptic manner. This involves proper protection by packing. We know that the larger the opening made, whether by incision or incidental tearing, the more need there is of packing.

To limit the discussion to-night to this one point of to pack or not to pack is unfortunate, since the subject matter of the paper has comparatively little to do with this point, notwithstanding the title, but is a lengthy dissertation on the technic of operating, and many interesting points touched on by the essayist should be discussed, favorably or otherwise.

Dr. Edwin Pynchon said that while the essayist had very modestly disclaimed any credit for bringing anything new before the members, he must acknowledge that he had brought forth some ideas that were worthy of mention that had not been elsewhere brought out, and he wished to particularly speak of the use of the blunt-pointed tenotomy shears.

Regarding packing, he has found that the method advocated by Dr. Freer is the most practical. However, in place of bismuth he likes to medicate it with a vaselin preparation containing antiseptics. One of the features to consider in packing the nose is that at the time of operation, owing to the use of cocain, the outer wall is very much contracted, and of course afterwards becomes congested, so for that reason it may make too much pressure. One of the great objects is mechanically to hold the two opposing surfaces together, and the more perfectly they are put in apposition the more surely they will heal and thus avoid the formation of hematoma which can otherwise organize and cause ultimate thickening of the septum, while it was designed through the operation to cause the septum to be as thin as possible. So consequently he is in favor of packing both nostrils.

Regarding the removal of the packing, as Dr. Freer suggests, he is in the habit of taking out half of the upper part in both nostrils the day after the operation; then may be on the second day all of the packing on the side that was concave, and in the third day the remainder of the packing. Prior to using these strips he used Bernays-Simpson tampons, but it is easy to see from a mechanical standpoint how impossible it is to make accurate apposition of the perichondria by the use of a device of that kind which swells unequally (two from the same box will swell differently), and may thus produce too much pressure. Another thing: The tampon, introduced in any way, cannot cover as much area as has been separated, so consequently above or back of the tampon hematoma may occur, and any thickening of the septum is detrimental in the way of interfering with the breathway in the upper part of the nose.

Dr. George E. Shambaugh stated that he had learned in the early days of his practice that it was not a safe procedure to do even the simpler operations in the nose and allow the patient to go home without packing, especially in a city the size of Chicago, where it often requires several hours before a patient can be reached. Both on account of the discomfort to the patient in having the nose packed and because of the long trip from the office to the patient's home, Dr. Shambaugh has in recent years performed almost all of even the simpler operations of the nose at the hospital, where the patient is allowed to remain over night. He is not in the habit of packing the nose under these circumstances, for if a patient remains quiet in bed the chances of a hemorrhage are much less than if he attempts to make a long trip to his home after the operation. If a hemorrhage should occur, the intern at the hospital can pack the nose, if necessary. As a matter of fact, Dr. Shambaugh can recall but one case where a patient left in this way had to have the nose packed by the intern; this was a case where nasal polypi and part of the ethmoid bone were removed.

In his operations on the septum he has always been in the habit of packing the nose. The packing in one side is removed at the end of twenty-four hours and the other at the end of forty-eight hours. He places a piece of paraffin on the side of the septum where the mucous membrane has been incised, which facilitates very much the removal of the packing from this side.

The point which Dr. Vail wished to emphasize, that secondary hemorrhage always means sepsis, Dr. Shambaugh is not willing to accept. He stated that while it is true that sepsis is often the cause of secondary hemorrhages, it does not follow that all secondary hemorrhages are the result of sepsis. Most of the cases of secondary hemorrhages which he has seen develop in cases where the tonsils had been removed, the hemorrhage taking place usually from five to ten days after the operation. In not a single one of these cases has he been able to recognize anything which he would class as sepsis, and in none of these cases was the local reaction at all marked. In a case of severe secondary hemorrhage from an operation in the nose the bleeding was accounted for by a high blood-pressure, and there was no evidence at all of infection in the nose.

Dr. Otis H. Maclay said he had enjoyed the paper and discussion, and especially the conservative remarks with reference to septal work. It has always been his desire to do his septal work that he could leave as much as possible of the septum, endeavoring only to get a functionating nose.

Regarding packing, he has always used packing, leaving it in originally for forty-eight hours. He has never had any sepsis, so far as he knows. For the last six months he has been taking out the packing, as a rule, in twenty-four hours. He has never had any hemorrhage that he has known of. There has always been some oozing and bleeding in all his operations. Whether without packing that would have been present or not, he does not know, but he has always felt safer when it has been used. He has packed less firmly in the last six months than before that time, but the packing, although it has allowed perhaps a little more oozing, has always been sufficient to control any bleeding that has occurred, but he has never felt perfectly justified in leaving it all out.

It is a matter of progress to hear this paper. Perhaps it is the proper course, and we may all gradually work into it. At least the method should be carefully considered before being accepted or condemned. The papers read before the society and the discussions represent the best efforts in this line, and although the society should be progressive, it is equally important that we should be conservative in the methods employed, since the work recognized in the society is considered the proper and safe course to pursue, and doubtless is adopted by others on that basis.

Dr. J. Z. Bergeron thinks that the principal reason for not packing is largely, if not absolutely, to lessen the patient's discomfort caused by the packing. For the last five or six months he has used the strip packing described by Dr. Freer, one layer on top of another, surrounded by a layer of gutta percha, and on removing it, after twenty-four or thirty-six hours, he has found that it caused absolutely no pain.

Dr. Edwin Pynchon said it had always occurred to him that in the use of the packing Dr. Freer advises, getting it in a piece and cutting off a strip about one-quarter or three-eighths inch in width; it is naturally irregular in shape, and if it is not cut in the right direction it breaks easily. It has seemed to him that some manufacturer should put this material on the market in strips with a selvage edge. He has never been able to find it.

Dr. Joseph C. Beck has, within the last three months, done quite a few submucous resections without packing. He would not say that he had left the nose without anything, but he had used no material such as gauze. He considers that the stoppage of the primary hemorrhage is very essential, and while he has the flaps open he packs the gauze firmly between them and allows it to remain in there from three to five minutes. Then, after removing, he watches for a minute or two, until he believes that the hemorrhage has stopped. Of course, if the arteries that come from the palate to the nose are cut, they might possibly start another hemorrhage, but five minutes' waiting is sufficient time. When he is sure that the hemorrhage has stopped, he brings the parts together as firmly as possible, holds them and introduces the wedge-shaped metal spring, as recommended by Brüning, he believed.

Dr. Beck agrees with Dr. Shambaugh. He has not packed a nose after an inferior-turbinate operation since he can remember, and has had no occasion to regret it.

He used the spring referred to above in ten successive cases with good results. Then he had a case where a hematoma followed, the pain radiating to the face with slight temperature. But he would not stop using the spring on account of this one case. Previous to using the spring, he used the packing referred to by Dr. Bergeron, which he (Dr. Beck) devised for that purpose and had no occasion to regret it, except the discomfort occasioned to the patient.

Dr. Robert Sonnenschein answered Dr. Pynchon's question regarding his inability to obtain gauze with a selvage on both sides. It is used very extensively in Europe. Mr. V. Mueller carries it and it can be obtained in the sizes of three-eighths and one-half inch.

Dr. Louis Ostrom, in closing, said that the members were behind the times if they packed. He has not packed for five years. They would not discontinue packing in Europe almost exclusively after submucous resection unless it was a good procedure. In the later books—St. Clair Thomson's and Parker's—published this year, no packing is advocated. Killian does not pack. Packing is not essential. He cited a case in which temperature had followed the operation, and after three days of this condition, with pain radiating to the face, he inserted a knife, expecting to see pus, but instead found only clear serum. He had a case of a hemophiliac in whom the blood dripped out like water in which he packed. He gave five packages of antitoxin and within an hour afterward had clotting. The packing was removed the next morning and in about four hours afterward the nose was swelled just as tight as if there had been a packing there. He had tried out the methods of packing referred to over and over again, and has had nothing but trouble from them. When he has bleeding he packs, but is not going to pack until there is bleeding. He keeps his patients under control so that they are right beside him.

Regarding perforations, we must remember that our work to-day must not be classed with that done three or four years ago. Dr. Freer said he had had perforations by accident. Dr. Ostrom has had them, but they were due to carelessness, or things that were beyond his control. But in those conditions it was simply a puncture, just as though made for drainage purposes.

He has never heard of the wire springs, referred to by Dr. Beck, but is going to get some.

Regarding his use of the expression, anterior tip, it was simply a doubling-up of language. He meant simply the tip or anterior end of the septum.

All the points brought out by Dr. Freer are covered in the paper, which the essayist did not have time to read in full. The paper deals with the technic, not with the pathology, but every form of reflection is considered and cases cited to explain the technic.

CRAWFORD COUNTY

The Crawford County Medical Society met in regular session March 13, 1913, in the Carnegie Library, at 2 p. m. The meeting was called to order by the president, and the minutes of the previous meeting were read and approved. After some discussion on the application of Dr. G. F. Smith, it was moved that the report of the Board of Censors on the application of Dr. Smith be received, and that Dr. Smith be elected to membership in the Crawford County Medical Society. Seconded and carried.

Dr. Voorheis read an exceptionally interesting and valuable paper entitled "Conservation in Medicine," dealing with the various problems and methods of conserving the health of the people.

The paper on "Serum Therapy," prepared by Dr. Davis, was also very interesting and instructive. The papers were discussed as one, the discussion being opened by Dr. Price and freely indulged in by the various members of the society present.

A communication from the Committee on Red Cross Medical Work regarding the appointment of a local committee of five physicians in the county was read. It was moved, seconded and carried that such committee be appointed by the president, who appointed the following members: H. N. Rafferty, A. Lyman Lowe, C. H. Voorheis, G. H. Henry and J. E. Midgett.

Moved, seconded and carried that the May meeting be held in Hutsonville. After some discussion it was decided to make the meeting a public meeting and to arrange a program that would appeal to the general public. Drs. Lowe, Voorheis and Price were appointed to prepare the program for this meeting.

Moved, seconded and carried that the secretary inform the president of the Alumni Association of the Medical College of the University of Illinois that the following resolution was adopted by the society:

Resolved, That the Crawford County Medical Society is in favor of a department of medicine in the University of Illinois.

There being no further business to come before the society it was, on motion, duly adjourned. A. LYMAN LOWE, Secretary.

DOUGLAS COUNTY

The regular quarterly meeting of the Douglas County Medical Society was held in the K. of P. Hall, Tuscola, Ill., Thursday, April 10, at 1:30 p. m., with the following members in attendance: Drs. E. S. Allen, I. W. Hall, W. A. Wiseman, W. E. Rice, Philip Herrin, J. L. Reat, F. W. Eskey, W. S. Martin, John Ewing, N. C. McKinney and W. C. Blaine.

Dr. H. A. L. Nickerson, president of the Illinois State Medical Society, read a very interesting and instructive paper on "Acute Articular Rheumatism."

Dr. E. B. Cooley of Danville, counselor for the Ninth District, was present and in his usual agreeable manner made a short talk to the Society.

Four new members were accepted by the board of censors: Raymond C. Gillogly of Newman, R. P. Ratts of Longview, C. W. and Alta Monroe of Arthur.

The following officers were elected for the ensuing year: President, Dr. Philip Herrin of Villa Grove; vice-president, Dr. N. C. McKinney of Murdock; secretary-treasurer, Walter C. Blaine of Tuscola; delegate, Dr. H. I. McNeil of Newman; alternate delegate, E. S. Allen of Arcola; censors, Dr. W. E. Rice of Tuscola, Dr. E. S. Allen of Arcola, and W. A. Wiseman of Camargo.

The following resolutions were passed by the Society:

Resolved, By the Douglas County Medical Society that we gladly place ourselves on record as being in favor of a state wide plan to improve our highways in such manner as will lessen the hardships of travel and at the same time improve the economic and sanitary conditions of the country.

JOS. L. REAT,
F. W. ESKEY,
W. A. WISEMAN, Committee.

WHEREAS, An efficient State Board of Health contributes largely to the welfare of the people by promoting sanitation and lessening the evils of charlatans who prey upon the credulity of the unfortunate and misguided. Therefore be it

Resolved, By the Douglas County Medical Society that we most respectfully request our governor in the selection of his men for this board that, without regard to *political creed*, he appoint the very best men he can secure in the medical profession to fill these important places of honor and trust; men of known scientific attainments, who are upright, ethical and have executive ability, who will command the respect and secure the cooperation of every reputable practitioner throughout the state.

WALTER C. BLAINE, Secretary. PHILIP HERRIN, President.

EFFINGHAM COUNTY

The regular monthly meeting of the Effingham County Medical Society was called to order by the president at 1:30 p. m., April 8. The minutes of the last meeting were read and approved. As the chairman of the Committee for Medical Defense Fund was absent, a round table discussion of the subject was entered into freely by all, and referred back to committee for definite action at the May meeting.

A very interesting paper on "Metastatic Infection" was given by Dr. Frank Buckmaster. This subject was very thoroughly discussed by Drs. Burkhardt, Bing, Wettstein and Hohman.

Those present were Drs. Taphorn, Bing, Bassett, Buckmaster, Wettstein, Hohman, Henry and DeWilliams of Vandalia.

JERSEY COUNTY

The Jersey County Medical Society held its annual meeting Tuesday, April 8, at Jerseyville, Ill. Dinner was served at the Colonial Hotel and after dinner the program and business meeting was held in the hotel parlor. An interesting paper by Dr. Wesley Park of Grafton was read.

Dr. C. E. Black of Jacksonville gave an interesting sketch of the first medical school in Illinois, which was a part of Illinois College at Jacksonville. Dr. Black talked on topics of general interest to the profession.

Officers were elected as follows: president, A. K. Van Horne; vice-president, H. R. Gledhill; secretary-treasurer, A. M. Cheney.

Dr. Frederick Doyle was admitted to membership in the society.

KNOX COUNTY

The regular meeting of the Knox County Medical Society was held in Galesburg, April 17, at 10:30 a. m., with President Bradley in the chair. Thirteen applications were accepted: P. E. Tovey, C. M. Rose, L. J. Pollock, J. F. Corbin, H. F. Mundy, H. E. Parry, M. H. Auter and H. L. Wilson, all of Galesburg; Beatrice Opre and R. H. Stewart of Victoria; E. J. Oberholzer, Williamsfield; A. H. Harms, Knoxville, and one reinstatement, C. W. Hunter of Oneida.

The following committee appointments were announced by the president:

Public Health and Legislation.—J. D. Bartlett, C. B. Horrell, L. Becker.

Entertainment.—F. G. Hall, J. M. Bohan, C. E. Quaife.

Resolutions and Communications.—R. C. Matheny, G. S. Bower, A. F. Stotts.

Medicolegal.—B. D. Baird.

Auditing.—B. D. Baird, W. H. Maley, J. M. Bohan.

Bills to the amount of $138.70 were allowed. Drs. Ripley, Maley and Baird were appointed a Committee on Credits.

The Red Cross Society having requested that a committee be appointed to cooperate with the national society in emergencies, the president, secretary and Drs. Percy, Franing and Finley were so appointed. A resolution endorsing the platform of the Illinois Highway Association was passed unanimously. Strong resolutions against criminal abortion were adopted. A committee was also appointed to confer with the Graduate Nurses' Association to formulate some plan to obviate the difficulty in having sufficient nurses to meet the demand. It was voted to subscribe for 100 copies of the Knox Medic.

The scientific program was carried out as follows:

A clinic at the Galesburg Hospital was held from 8:30 to 10:30 a. m. at which Dr. W. L. Ballenger of Chicago operated on twelve cases, removing the tonsils in most by the Sluder method. The adenoids were also attended to. The clinic was well attended and very instructive.

Dr. A. D. Pollock opened the afternoon session with a talk on "Femoral Fractures," with demonstration of a splint.

Dr. C. B. Ripley of Galesburg presented a paper on "Cardiac Complications," with special reference to those following infectious diseases in childhood.

Dr. H. B. Hemenway of Evanston presented a paper on "Principles of Therapy under the Teachings of Modern Biology" that went into the subject very thoroughly.

Dr. W. L. Ballenger of Chicago gave a talk on "Indications for Various Types of Mastoid Operations."

The thanks of the society were voted to Drs. Ballenger and Hemenway.

Forty members were in attendance and about twenty-five visitors, most of whom were physicians from adjoining counties.

G. S. BOWER, Secretary.

LAKE COUNTY

The regular spring meeting was held April 17, at 5 p. m., at the Hotel Moraine, Highland Park. After the reading of the minutes of the last meeting the secretary made a few remarks regarding the importance and value of attending the state meetings, and especially of the delegate and alternate letting nothing, if possible, prevent their attendance. Dr. J. L. Taylor was then elected delegate, and Dr. L. M. Bergen alternate. Dr. Barker then read the following resolution:

WHEREAS, There are reliable rumors afloat in Lake County regarding the inadequacy of the work done by Dr. A. E. Brown, county physician; be it

Resolved, by the Lake County Medical Society, that the Board of Supervisors be requested to appoint a committee at its next special meeting, April 18, 1913, for the purpose of investigating the truth or falsity of the said rumors, with a view either to exonerate him of the charges or make some other arrangements as to the medical and surgical care of the county poor.

After an interesting discussion in which Drs. Brown, Daniels and several others participated, the resolution was tabled, and then Dr. Taylor moved that the president appoint a committee of seven members from different parts of the county, who should devise a better plan for the medical care of the county poor, which should be practicable, and this plan should be presented to the Board of Supervisors at their June meeting for their consideration. This motion was unanimously carried. The president appointed the following members on this committee: Dr. Taylor, chairman, Drs. Sheldon, Foley, Barker, Fuller, Palmer and Young.

Dr. DeLee, the well-known obstetrician of Chicago, then gave a very interesting and instructive talk in response to questions by different members, explaining his treatment of occipitoposterior presentations at different stages of labor, securing anterior rotation by internal manipulation with or without the aid of forceps. The talk on the treatment of puerperal sepsis was especially interesting. He said he had spent six months in preparing the chapter on this subject in his standard work. Some of his chief points were: First be sure the fever is due to trouble with the genitals, and not to some other cause, like tonsillitis, appendicitis, typhoid, etc. If sure the trouble is in the genitals and stitches have been taken either in the perineum, vagina or cervix, take them out promptly. He has always found pus in such cases. Next and most important, don't curette or use any intra-uterine treatment except in case of hemorrhage. Curettage is one of the most certain means of causing a fatal result. Lastly, raise the patients in bed to favor pelvic drainage, give a cathartic, 15 drops each of ergot and hydrastis three times daily, and then let them alone. In over 15,000 labors he had had only four deaths from puerperal sepsis, and in none of those four cases was anything found in the uterus. He had found antistreptococcus serum of value in these cases by promoting leukocytosis which protects against infections of all kinds. He did not favor the use of vaccines. The society gave Dr. DeLee a hearty vote of thanks for his very able and instructive remarks.

Dr. Gourley then read a paper on "Conservative Surgery" containing many excellent and important points.

Dr. Taylor reported the death of Dr. Everett E. Tracy of Prairie View, and the society voted to send a cordial message of sympathy to the widow and children.

The society then enjoyed a delightful banquet, enlivened with interesting stories. There were twenty members and four guests present.

The next meeting will probably be held in Libertyville late in June.

W. C. BOUTEN, Secretary.

LA SALLE COUNTY

The annual meeting of the La Salle County Medical Society was held in the supervisors' rooms at Ottawa, April 22, and was largely attended. Discussions were held on topics of interest to the association and a clinic held at the hospital.

Dr. A. M. Corwin of Chicago held the clinic and demonstrated the enucleation of tonsils by the Sluder tonsillotome, a new and very effective method. Drs. Dorsey and Perisho of this city were also on the program. Dinner was served at the new Clifton Hotel at 1 o'clock.

Those attending from this city were Drs. Dorsey, Sexton, Perisho, Wilson and Howe.

MACON COUNTY.

The annual banquet of the Macon County Society was held at the St. Nicholas Hotel, Decatur, Ill., April 23, 1913. Previous to the banquet a business meeting was held at which the following officers were elected: president, J. N. Randall; vice-president, J. W. Sanders; secretary-treasurer, C. E. Hildreth. Dr. William Bell, the retiring president, was elected delegate to the state convention at Peoria, and Dr. M. P. Parrish, alternate.

Dr. William E. Quine, dean of the College of Physicians and Surgeons, Chicago, gave an interesting address. He spoke on the "Tendencies of Some Surgeons to Insist on Unnecessary Operations for Pecuniary Gain."

M'DONOUGH COUNTY

The McDonough County Medical Society met April 8 in the City Hall at Bushnell. A large number of the members were in attendance despite the inclemency of the weather. Aside from the regular meeting resolutions were adopted to instruct the state senator and representatives from this district to not only vote but to work against the proposed measures relative to adopting the osteopathic bill now pending before the legislature which creates a special board of examiners for osteopaths and to give them the right of practicing medicine and surgery.

The members also sent instructions to the senator and representative to bring before the legislature a bill to stop the importation of tuberculous cattle into the state.

Dr. A. K. Drake gave a very interesting talk on "Glaucoma," a disease of the eye.

Dr. Elizabeth Miner read a very interesting paper on "Pneumonia" and Dr. Duntley of Bushnell addressed the members on "Medicolegal Jurisprudence."

M'LEAN COUNTY

At the April meeting of the McLean County Medical Society the following officers were elected: president, Dr. Wilfred H. Gardner; vice-president, Dr. Horace W. Elder; secretary-treasurer, Dr. Thomas D. Cantrell; state delegate, Dr. W. H. Gardner; censors, Drs. H. W. Elder, F. C. Vandervort and W. M. Young.

Dr. M. Wallis read an excellent paper on "The Care of the Primiparae" which was well and generally discussed. The attendance was good and interest fine. Our membership has now passed the 100 mark.

Fraternally,

T. D. CANTRELL, Secretary.

MONTGOMERY COUNTY

The Montgomery County Medical Society held its meeting February 25 in the Club Rooms at Hillsboro, Ill. In the absence of the president, Dr. Z. V. Kimball was chosen to preside. The following were in attendance: L. S. Brown, M. L. Moyer, W. W. Douglass, H. A. Seymour, F. C. Blackwelder, M. W. Snell, T. W. Williams and H. F. Bennett.

The secretary was instructed to write a letter, thanking Dr. Lewis Wine Bremerman of Chicago for his splendid clinic at our January meeting.

The scientific program of the meeting consisted of a most excellent paper on "Meningitis" presented by Dr. M. W. Snell. The paper brought out considerable discussion that was most interesting and instructive.

The program committee selected Litchfield as the next meeting place. Meeting adjourned.

The meeting of March 31 was held at St. Francis Hospital, Litchfield, with the following present: Drs. P. M. Kelly, W. W. Douglass, R. W. Allen, L. G. Allen, T. W. Williams, M. W. Snell, R. N. Canaday, G. A. Sihler, Jr., E. H. Hermann, C. R. Driskell, C. H. Lockhart, Z. V. Kimball and H. F. Bennett.

A most interesting and instructive clinic on internal medicine was held by Dr. William Engelbach of St. Louis. We regret that many of our members missed the opportunity of hearing this able clinician.

The applications for membership of Harley G. Stanton (St. Louis University, 1912) of Irving, J. M. Hoyt (Marion-Sims, St. Louis, 1897) of Fillmore and Karl L. Hayes (College of Physicians and Surgeons, Chicago, 1906) of Farmersville were read, approved and applicants elected. The applications for reinstatement of H. A. Seymour of Hillsboro, C. R. Driskell of Farmersville and Chas. Ford of Waggoner were approved.

MORGAN COUNTY

The Morgan County Medical Society met April 10, in Jacksonville. A change in hours of meeting was made as an experiment for two reasons: to give the members attending opportunity to see clinical cases and again to give men in the county opportunity to get in and out during the middle of the day; accordingly clinics were held at Passavant Memorial and Our Saviors hospitals by Drs. Black, Crouch, Hairgrove, Hardesty, Norris and Stacy, together with clinical reports by Drs. Adams, J. A. Day, Milligan and Reid.

At 1 p. m. at the Medical Library, Dr. Carl E. Black read a paper on "Gas Gangrene," together with reports of five cases. This condition is a rather rare one and demands immediate attention since it presents a combination of a serious infection which causes an immediate and large loss of tissue and death if not speedily checked. The bacilli of malignant edema and aerogenes capsulatus are the most common causes.

Two cases showed typical tetanic seizures, spasms, muscular stiffness, twitchings and nervousness. The association of tetanus and aerogenes capsulatus both being anaerobes, would seem a rational one, but recorded cases seem to be very rare. Kolb and Laubenheimer in *Münchener Med. Wochenscrift*, March 4, 1913, report a case of crushing injury operated upon and antitetanic serum was given as a preventive of lock jaw; postoperation; gauze removed, hissing sound, gas forming germ found, also bacilli tetani; more antitetanic serum injected. Recovery. This case shows that antitetanic serum did prevent tetanus. The presentation of the subject was interesting and a number discussed it. Dr. Black laid especial stress on the importance of injection of serum as a prophylactic in gunshot wounds and in injuries contaminated by street dirt and manure. The patient should always have the option of receiving the serum or not.

The letters of Dr. Nickerson advocating a progressive and scientific State Board of Health, and of Dr. Whalen recommending good roads legislation, were referred to the legislative committee with power to act in accordance with the letters.

Doctors present were: Crouch, Ogram, Woltman, Milligan, Black, Hardesty, Adams, Gregory, Cochran, Perkins, Hughes, J. K. Elder, Jones, Hairgrove, Morris, Leonard, Comatscy, Stacy, Spencer and Franklin.

GEORGE STACY, Secretary.

PEORIA COUNTY

Regular Meeting, Feb. 18, 1913

The meeting of February 18 was called to order by the president, Dr. H. M. Hayes, and the following were present: Drs. McMahan, Meloy, Levitin, Farnum, J. C. Roberts, Foerter, Marcy, Allison, Hasson, Ulrich, C. W. Miller, Kirby, Wiens, Short, Eicher, E. L. Davis, Roskoten, M. D. Sprague, R. B. Roberts, Stephenson, C. D. Thomas, Huber, John Sloan, Daugherty, Duane, Cory, Wakefield, Gillespie, Barbour, Dr. R. B. Robert's father, Sprenger, Washburn, Hanna, Allen, Easton, McIlvaine, Collins, Weber, Bacon, Hanley, Knapp, Corcoran, Magee.

The minutes of the previous meeting were read and approved. A very interesting "Case of Psoriasis" was presented by Dr. W. B. Wakefield. On motion of Dr. Hasson the regular order of business was postponed until after the scientific program. Dr. Dean Lewis then read a most instructive paper on "Fibrous Osteitis." The paper was especially interesting and was discussed by Drs. E. L. Davis, Weber, Bacon and S. M. Miller.

Dr. Eugene Cohn presented a specimen of an appendix which he had just removed containing a pin. On removal of the appendix the pin was found projecting from the appendix into the cecum.

Dr. Allison made a report of the program of arrangements for the state meeting.

Dr. Knapp made a final report of the banquet committee showing a surplus of $13.50. It was moved, seconded and carried that this surplus be turned over to the Bulletin fund.

The meeting adjourned.

Regular Meeting, March 18, 1913

President H. M. Hayes presided and the following were present: Drs. Wakefield, Mars, R. C. Bradley, E. H. Bradley, Hasson, S. M. Miller, Wiens, Cohn, Krafft, Brock, Foerter, Campbell, Brobst, Knapp, John Sloan, McIlvaine, Huber, Kirkpatrick, Corey, P. T. Spurck, McMahan, Sedgwick, Marcy, Kerr, H. B. Thomas, Allen, Short, Will, Stephenson, C. D. Thomas, Easton, Sprenger, F. S. Davis, Allison, Magee, Bacon. Visitor: Dr. W. H. Packard.

After the minutes of the previous meeting were read, the regular order of business was deferred until after the scientific program.

Dr. Henry B. Ward of the University of Illinois, Champaign, then delivered a most delightful and instructive lecture on "The Transmission of Protozoal Diseases from Animal to Man." Dr. Ward's delivery was especially pleasing, his subject matter very practically applied and rendered very impressive by a series of superb charts. The plasmodium malaria was shown in its various phases of development from man through the mosquito route to man again. The causing elements in amebic dysentery, intestinal ulcers, liver abscesses, etc., responsible for one-fourth of all deaths in Manilla; the trichomonas intestinalis and balantidium coli, found in some forms of dysentery, the latter occurring only in the country because it has its nativity in pigs. The trypanosoma whose habitat is the rat, causes sleeping sickness in man through infection from the biting-fly, in which it makes its home for a generation. Spirochetae, Dr. Ward believes, are animal and not vegetable. He is also of the opinion that the transmission of the infection is not ordinarily through any biting insect. Yellow fever remains unsolved. The parasites have not been determined, although their life history has been worked out. The mosquito becomes infective in eleven to fourteen days after inoculation. The little heathen belongs to the malaria group. There are other organisms beyond our vision, waiting for some ultra microscope to detect. Drs. Bacon, Will, Cohn, Short, Kerr, Huber and Professor Packard of Bradley entered into the discussion.

Dr. J. H. Bacon gave a very interesting talk on "The London Clinics," dwelling on the work of Lane on intestinal infections. Drs. Short and Hayes

added suggestions along the line of finding things in "Ole Lonnon." Opinions differed materially as to whether the English capital has fogs. We, the uninitiated, could only weigh the evidence brought out in the hearing, giving the speakers due credit for their several reputations for veracity.

Dr. W. R. Allison made a touching appeal for the payment of the state meeting assessment. Just how many were touched we have not been informed.

Dr. R. A. Kerr turned in the banquet receipts and $13.50 surplus, presumably to save litigation and expense.

The secretary reported the completed organization of the Peoria Health Service League, which is to be a clearing house for health legislation, comprising three delegates from each organization in the city interested directly in public health. Dr. Kerr moved that this society be represented by three delegates. Carried. Drs. George Parker, R. A. Kerr and E. W. Oliver were appointed.

The secretary read a letter and answers from the Peoria Health Service League to the candidates for mayor, in which said candidates expressed their opinions as to whether the Peoria City Medical Society should be consulted relative to the appointment of health officers. They were not unfavorable to getting the endorsement of the society, since it represents all the reputable physicians in Peoria with but three or four exceptions.

Bills for printing, $46.35, and rent for three months were read and ordered paid.

Dr. V. C. Morton's transfer to the Champaign County Society was reported by the secretary.

After a rising vote of thanks to Dr. Ward, proposed by Dr. S. M. Miller, the society adjourned.

ROCK ISLAND COUNTY

Thirty-two members attended the annual meeting of Rock Island County Medical Society at Rock Island Club, Tuesday evening, April 8, 1913. Dinner was served at 6:30 p. m., following which election of officers resulted in carried motions that unanimous ballots be cast for the following: president, Dr. W. D. Snively, Rock Island; first vice-president, Dr. J. W. Seids, Moline; second vice-president, Dr. H. J. Love, East Moline; secretary, Dr. W. D. Chapman, Silvis (reelected); treasurer, Dr. A. T. Leipold, Moline (reelected); delegate, Dr. E. Sargent, Moline; alternate, Dr. G. L. Eyster, Rock Island.

By-laws, Chapter V., Section 1, was amended by vote to read: "Annual dues shall be $5, etc.," balance of section remaining unchanged. Reports of secretary and treasurer showed cash balance on hand of $184.73 and a present membership of seventy-three, a gross gain of twenty and a net gain of twelve members for the year. Drs. L. D. Barding, Alexander Craig and W. A. Crooks were elected to membership. Dr. L. W. Littig, Davenport, Iowa, was elected to honorary membership in recognition of his regular attendance at our meetings and his able contributions to the success of our scientific programs throughout the year. The application of Dr. J. H. LaGrange was read and referred to committee. A committee was appointed to comply with requests for good roads activity contained in a communication received from President-Elect Whalen of state society. The two papers constituting the program were unusual and excellent. Discussion was better participated in than is our habit. Adjournment taken until June.

W. D. CHAPMAN, Secretary.

STEPHENSON COUNTY

The members of the Stephenson County Medical Society met April 11, 1913, in the supervisors' room at the Court House in Freeport, Ill. The society appointed a Red Cross committee in accordance with the invitation recently sent out by Dr. Kober, chairman of the Red Cross Committee of the American Medical Association. On hearing of the disaster by flood in the states of Indiana and Ohio, the committee took it on themselves to sponsor a relief fund. To date a collection of over $1,000 has been taken up for the American Red Cross Society.

The special committee appointed at a recent meeting of the society made the following report: We, a committee of physicians of Freeport, appointed by the president of the Stephenson County Medical Society, hereby make application to the Stephenson County Medical Society to grant us permission to organize an auxiliary medical society to be known as the "Freeport Physicians Medical Club (or Academy). The following amendment is offered to the constitution and by-laws of the medical society: The county society hereby authorizes and establishes a subsidiary society to be known as the Freeport Section of the Stephenson County Medical Society. This society shall be self-sustaining and shall have laws and by-laws independent of the Stephenson County Medical Society, but harmonious with and subject to the rules, laws and by-laws of the Stephenson County Medical Society." The report of the committee was accepted and a motion was carried to the effect that an amendment such as proposed by the committee be made a part of the existing constitution of the society. Proper action will be taken to effect this change and it is hoped that ere long the profession of Freeport may be enabled to come together more frequently than in the past, when meetings were held every three months. This will in no wise interfere with the regular quarterly meetings of the county society, which will be maintained as in years past.

The pulmotor apparatus owned by the Freeport Gas Company was demonstrated by Dr. W. T. Collins.

Dr. W. L. Karcher's paper on the subject of "Exophthalmic Goiter" was made doubly interesting by the use of the stereopticon. Pictures were shown of actual cases of the condition, together with microphotographic plates of the various pathologic states found. In addition several postoperative cases were present, so that one felt as though he were back again in the clinics.

WARREN COUNTY

The semi-annual meeting of the Warren County Medical Society was held at the Monmouth Commercial Club on Friday, April 4. The meeting was called to order promptly at 1 p. m. by the president, Dr. W. H. Wells, and the reports of the secretary and treasurer were read and approved. After the reading of these reports, the applications of four physicians for membership in this society were read and the board of censors were asked to report. They reported favorably and the four men were taken into full membership. They are Drs. P. E. Kimery of Smithshire, M. S. Jewell of Little York, S. M. Pittman of Greenbush and N. S. Hoornbeck of Youngstown. The report of the secretary then brought out an interesting fact, that every eligible physician in the county, in active practice, is a member of the county society. (What county can duplicate this record?) The officers for the ensuing year were then elected. Dr. J. F. McCutchan of Alexis, the oldest practitioner of Warren County, was unanimously elected president of the society, receiving the vote of every member. Dr. McCutchan is an octogenerian, and has practiced his profession forty-five years, and is still quite active, and should see several years active service. Dr. E. C. Linn of Monmouth was elected vice-president, and Harold M. Camp, secretary and treasurer. Dr. W. H. Wells was elected delegate to the state society meeting, and H. L. Kampen was elected as alternate. A committee was appointed to confer with the legislators from this district and urge their support for the university appropriation bill, which will benefit the university medical school. This committee was Drs. H. M. Camp, Alva Hiett and Ralph Graham.

After the business of the society was transacted the first speaker of the afternoon was introduced, Dr. Robert H. Smith of Seaton, who gave a talk on "One Case of Ascites, with the Differential Diagnosis." Dr. Smith, in his usual thorough way, gave the history of a very interesting case that recently came up in his practice. The differential diagnosis is not so simple as is usually thought, when we carelessly say "it is either due to the heart, liver or lungs," and the reasons for this were clearly given in the paper. The paper was discussed by the following physicians: Drs. Bacon of Macomb, Dorsey of Keokuk, Sherrick of

Monmouth, McGee of Burlington, Stremmel, Holmes and Hermetet of Macomb, Finely and Luster of Galesburg. Dr. Smith then closed the discussion.

The second speaker was then introduced, Dr. Bayard Holmes of Chicago, who gave a talk on "The Complications of Cholecystitis as Shown by the Experience of the Past Three Years." Dr. Holmes gave the minute anatomy of the liver ducts and gall-bladder and showed how gall-bladder infections could be responsible for many serious complications. He showed that an apparently mild infection of this structure might be followed by severe complications, and that the degree of infection and severity of the complications had no definite relations whatsoever. Also, that the apparent severity of the infection should not always determine the treatment. The paper of Dr. Holmes was based on his own experience, and it has been a very broad one, as could readily be seen by the talk. Dr. Holmes stated that in his opinion the only indications for removal of the gall-bladder were: first, those cases where there is a destruction of the duct, and second, those in which is seen an irreparable injury to the gall-bladder itself. This paper was discussed by a number of men, being led by Dr. Stremmel of Macomb and Dr. Dorsey of Keokuk. Others who discussed the paper were Drs. MaGee of Burlington, Iowa, Bacon of Macomb, Finley of Galesburg, and then the discussion was closed by Dr. Holmes, who was gratified to see so many of the surgeons present agreed with his ideas.

The next speaker was Dr. Wm. E. Quine of Chicago, who gave a talk on "The Relations Between Cardiovascular Diseases and Renal Diseases." Dr. Quine in his usual impressive manner clearly discussed this subject, showing from the anatomy of these organs, that a diseased condition might begin either in the arteries, heart or kidneys, giving the same set of symptoms, and affecting all three structures in a similar manner. He also showed how hard it is to determine which condition has been the primary one. These symptoms were briefly described, showing how each was produced, and the management of the conditions was briefly outlined. After this talk, the paper was discussed first by Dr. R. H. Smith of Seaton, who told of the difficulty of diagnosing the primary condition and how easily one or more of these conditions could be overlooked. The paper was further discussed by Drs. Scherrick and Graham of Monmouth, and Dr. Horrell of Galesburg.

This paper closed the afternoon's program, and a rising vote of thanks was given to Drs. Quine and Holmes for leaving their work and coming to Monmouth on this occasion.

In the evening, an informal dinner was given at the club, in honor of the guests and about thirty physicians remained for this part of the program. There were physicians present from seven counties, the total attendance being about sixty-five.

WINNEBAGO COUNTY

The Winnebago County Medical Society assembled in annual banquet at Nelson Hall, April 8, at 8 p. m. Thirty-five local and ten Beloit physicians were present. Dr. Emil Lofgren presided.

After partaking of an enjoyable feed some business was transacted. Three doctors, on application to the board of censors, and following their favorable report, were voted in as members of the society. Dr. Emmanuel Rundquist of Rockford, Dr. Biagio Francescti of Rockford and Dr. C. O. Sheppard of Winnebago were the gentlemen admitted.

The reading of the minutes of the previous meeting was dispensed with. The president then introduced the speaker of the evening, Dr. E. A. Fischkin of Chicago, professor of dermatology at the Chicago Medical College. Dr. Fischkin gave the society a most interesting and instructive talk on the "Salvarsan Treatment and the Wassermann Reaction in Syphilis." He also mentioned the great advancement being made in Germany on just this subject. The doctor had recently visited Europe and had attended many of the larger clinics.

A vote of thanks was given Dr. Fischkin for his kindness and willingness to come to Rockford and address the society.

NEWS OF THE STATE

NEWS ITEMS

—The physicians of Moline have decided to ask the state society to meet in that city in 1914.

—A new hospital has been planned for Rochelle, and most of the funds required have been pledged.

—St. Joseph's Hospital at Bloomington is arranging to make extensive improvements during the coming summer.

—Dr. J. C. Dodds of Champaign has retired from practice, and has given his library to the public library of that place.

—The citizens of Hillsboro have arranged to erect a hospital on property situated on School Street and known as Lake View.

—Dr. Frederick F. Garrison has returned to Chicago and resumed the practice of medicine with an office at Suite 907, 7 West Madison Street.

—Two doctors who had tied for the office of alderman at Monticello, cast lots and the winner was Dr. W. G. McDeed, the Progressive candidate.

—Dr. J. O. Salyers of Springfield was held to the grand jury under bonds on the charge that he had performed an operation on Mrs. Opal Mayhew, which resulted in her death. Dr. Salyers was released on $5,000 bonds.

—Dr. Robert McKenzie, son of Dr. and Mrs. William R. McKenzie of Chester, Ill., and a graduate of Smith Academy, St. Louis, Mo., of the University of Michigan in 1907, has the distinction of being the youngest man ever elected to the office of mayor of Ann Arbor.

—The Danville Physicians' Club have been giving free "movies" to the public of that city at one of the theaters on Sunday afternoons on the subjects relating to the preservation of public health. No admission is charged, but the voluntary contributions have been found to be sufficient to pay expenses.

—Rush Medical College Alumni Reunion will this year be a distinctive feature at the coming meeting of the State Association at Peoria, May 20, 21 and 22. Dr. A. B. Will, Class '82, Nestor of the local fraternity, and his able corps of Rush graduates, have already made all suitable arrangements for a luncheon during the noon recess. *Full and plenty and a good reunion is assured.*

—The Springfield Open Air Colony, a sanatorium and school for the tuberculous, will be opened early in May under the medical direction of Dr. George Thomas Palmer. While this will be a private institution and entirely under Dr. Palmer's control, its establishment has been made possible through the financial support of a number of prominent Spring-

field people. The colony occupies a tract of ten acres in the outskirts of Springfield, within an easy walk of the city car lines. The main building, which is now completed, contains sleeping quarters for sixteen patients, and living rooms, dining room and kitchen for fifty. The colony will operate at rates as low as possible in a high class, self-sustaining institution, and will remain pledged to the philanthropic work of the Springfield Tuberculosis Association, whose medical work Dr. Palmer has conducted for two years past.

—A bill proposed by Senator Francis and adopted in the Iowa Senate, defining unprofessional conduct on the part of physicians and surgeons for which certificates may be revoked has passed the House. The following are defined by the bill as unprofessional conduct:

1. Procuring, aiding or abetting an abortion.
2. Employment of "cappers" or "steerers" to get business.
3. Obtaining a fee on representation that an incurable disease may be cured.
4. Betrayal of professional secrets to the detriment of the patient.
5. Advertising untruthful or improbable statements.
6. Advertising any kind of "monthly regulators" for women.
7. Conviction of an offense, involving moral turpitude.
8. Wilful neglect of a patient in a critical condition.
9. Accepting any fee as witness in case arising from professional knowledge.
10. Demanding or accepting an exorbitant fee for a surgical operation.
11. Splitting fees with another person without knowledge of the patient or his caretaker or guardian.
12. Knowingly misstating cause of death, except where such statement would be libel on the deceased or an injury to his survivors.

The bill does not make it unprofessional for the doctors to advertise in the newspapers. This is a code of their own.

PERSONALS

Dr. H. N. Giles has removed from Polo, Ill., to Hope, Ark.

Dr. Erwin Dudley of Decatur will locate at Cerro Gordo, Ill.

Henry W. Clifton, M.D., has removed from Lacon to Watseka.

Dr. Carl Rochow will engage in the practice of medicine at Rock Island, Ill.

Dr. J. W. Rendleman of East St. Louis fell from a stepladder and fractured both of his wrists.

Dr. William A. Haskell of Alton is making his way home from Tampa, Fla., by automobile.

Dr. J. P. Comegys of Rock Island succeeds Dr. G. L. Eyster as Post Surgeon at Rock Island Arsenal.

Dr. S. J. Beeson, Chicago, has returned from a trip to Australia, New Zealand, South America and the West Indies.

Dr. W. W. Haven and family, who recently moved to Collinsville, have moved back to their old home at O'Fallon, Ill.

Dr. E. C. Lemen of Upper Alton had a narrow escape when his house caught fire last month. He was carried out uninjured.

Dr. F. W. Wilcox of Minonk, Ill., is recovering from an operation for chronic appendicitis and adhesions of the colon at the Henrotin Memorial Hospital, Chicago.

Drs. C. Martin Wood and S. E. McClelland of Decatur have gone to Europe, where they will take up post-graduate work in the hospitals in London and Berlin.

Dr. J. Morgan Sims, coroner of Madison County, was elected second vice-president of the State Coroners Association, at a meeting held in Springfield recently.

Dr. John Beatty, a former resident of Granite City, is now in active practice in Sultan, Wash. He was recently married to Miss Grace Horney of Everett, Wash.

Dr. Harry E. Lemen of Alton is an applicant for the position of Commissioner to the Panama Exhibition in San Francisco, in 1915, to represent the state of Illinois.

Dr. Frederick F. Garrison of Havana has transferred his practice to Dr. E. J. Carey of Chicago, and will remove to 348 East 41st Street, Chicago, where he will take up the practice of medicine.

Dr. and Mrs. J. L. R. Wadsworth of Collinsville, who passed their golden milestone on March 10, were the recipients of the congratulations of a host of friends, presented by person, by letters and by telegrams. A golden loving cup was presented by the members of the First Presbyterian Church, of which the doctor is an honored trustee.

The Marion County Medical Society held a rousing meeting in Centralia on February 29. Dr. D. N. Eisendrath of Chicago and Dr. William Engelbach of St. Louis were the principal speakers. Dr. Fiegenbaum of Edwardsville, by special invitation, gave an address to the general public at the First Methodist Church in the evening.

REMOVALS

Dr. H. W. Hand of Whitehall has removed to Granite City, Ill.

Dr. J. M. G. Carter of Chicago has removed to Los Angeles, Cal.

Dr. Earnest A. Green has removed from Crossville to Grayville, Ill.

Dr. F. B. Miller has removed from Vergennes, to Pinckneyville, Ill.

Dr. R. B. Yoder has removed from Cerro Gordo to Cass Lake, Minn.

Dr. George A. Lierle has removed from New Berlin to Burton, Ill.

Dr. Wm. H. Holmes has removed from the Kankakee State Hospital to Chicago.

Dr. Henry N. Barth has removed from Davis to 1124 Oakdale Avenue, Chicago, Ill.

Dr. A. L. Parke has removed from Beardstown to 2584 Evans Street, Omaha, Neb.

MARRIAGES

DAVID E. MONASH, M.D., to Miss Edyth Mayer, both of Chicago, April 8.

WALTER ANTHONY STUHR, M.D., to Miss Gladys Caroline White, both of Chicago, April 2.

FLOYD BURKE RILEY, M.D., Chicago, to Miss Beulah Nye Bennison of Los Angeles, Cal., at Cedar Falls, Iowa, April 24.

CLESSON CUSHMAN ATHERTON, M.D., Elgin, Ill., to Miss Lucy Rose Thompson of Springfield, Ill., at Quincy, Ill., March 11.

DEATHS

ED. MASON, M.D., of Arthur, Ill., died at St. Mary's Hospital, Decatur, Ill., March 24, 1913, following an operation for appendicitis; aged 40.

ALBERT LAWRENCE COLLINS, M.D., Medical College of Indiana, Indianapolis, 1883; died at his home in Long Creek, Ill., February 4; aged 52.

GEORGE W. JOHNSON, M.D., Bennett Medical College, Chicago, 1879; for many years a practitioner of Lewistown, Ill., died at the home of his daughter in Kansas City, Mo., April 3; aged 79.

CLARK H. CARR, M.D., died at his home in Cowden, Ill., April 18; aged 99 years. Dr. Carr had been a resident of Cowden for nearly forty years. Seven children, two sons and five daughters, survive.

HENRY R. KERN, M.D., Secretary of the Kankakee County Medical Society, a practitioner of Kankakee, died at his home in Dwight, Ill., March 28, after a five-weeks' illness of carcinoma of the stomach.

J. C. SNIVELEY, M.D., formerly of Cuba, Ill., but for several years past a resident of Fruitdale, Ala., died April 20, 1913. The remains were brought to Cuba for interment. Dr. Snively was born Aug. 29, 1865.

EVERT EVERTSON TRACY, M.D., Albany (N. Y.) Medical College, 1891; a member of the Illinois State Medical Society and Association of Military Surgeons of the United States; Captain M. C. Illinois National Guard; died at his home in Prairie View, Ill., April 9, from nephritis; aged 43.

JOSEPH L. KITCHEN, M.D., Northwestern University Medical School, Chicago, 1869; a veteran of the Civil War; formerly a practitioner of

Wyanet, Ill., and Sentinel, Butte, N. D., died at his home in Harvey, Ill., March 20, from nephritis; aged 69.

WILLIAMSON C. PACE, M.D., Washington University, St. Louis, 1854; a surgeon during the Civil War and a practitioner of Ashley, Ill., for half a century; died at the home of T. H. Benton in that place, March 25, from cerebral hemorrhage; aged 82.

Book Notices

MAKING GOOD ON PRIVATE DUTY.—By Harriet Camp Lounsbery, R.N., president West Virginia State Nurses' Association, Sanitary School Inspector for Charleston Independent School District. 208 pages. Cloth. $1.00 net; postpaid $1.10. J. B. Lippincott Company, Philadelphia.

Mrs. Harriet Camp Lounsbery has written a book for private nurses which we are sure will receive a warm welcome. She is well fitted to survey the subject from many points of view, for not only has she been in the past a nurse herself, but she is also a doctor's wife and a mother, so that she can add the doctor's and the patient's points of view to that of the nurse. She has a happy way of making the nurse's problems her own and of treating them wisely and sympathetically.

A METHOD OF MEASURING THE DEVELOPMENT OF THE INTELLIGENCE OF YOUNG CHILDREN. By Clara Harrison Town, Ph.D. Second edition. Price $1.00. Chicago Medical Book Co.

We are glad to note that Dr. Town's translation of this excellent work has been received with considerable enthusiasm by educators and students of mentality. The second edition is much more carefully edited and printed. It is now on the market and can be obtained from the Chicago Book Co. Price $1.00. Physicians will find it very valuable in their practice among children, and teachers universally should have a copy in their possession for consultation.

WHEN TO SEND FOR THE DOCTOR AND WHAT TO DO BEFORE THE DOCTOR COMES. By Frieda E. Lippert, M.D. and Arthur Holmes, Ph.D. Price $1.00. J. B. Lippincott Co., Philadelphia and London.

This work of 250 pages is an excellent guide to the parents and the orphanage officials regarding slight ailments which afflict children. A copy placed in the hands of every family by the family physician will save the doctor many steps and pay for itself in a short time by the valuable advice contained therein. It is one of the most excellent books for the laity which is now being put on the market.

THORNTON'S POCKET MEDICAL FORMULARY. By E. Quin Thornton, M.D. Tenth edition. Price $1.50 net. Lea & Febiger, Philadelphia and New York.

This formulary contains 2,000 prescriptions representing the latest and best therapeutics, arranged alphabetically under headings of the various diseases for quick reference. Full annotations, directions and details and a most useful, wallet-sized volume in leather binding.

THE CAREER OF DR. WEAVER. By Mrs. Henry W. Backus. Cloth, decorative, illustrated. L. C. Page & Co., Boston, Mass. Price, $1.25.

High craftsmanship is the leading characteristic of this novel, which, like all good novels, is a love story abounding in real palpitant human interest. The characters, each clear, vivid and outstanding, are worth-while folk who breathe

and speak and do things. The madonna in the market place, the white-capped nurse in the hospital, the surgeon in the flush of achievement, the medical fledgling under stress of high endeavor, the butterflies of society in their flittings and the great public with pulsating temples are staged with effectiveness. There is a prophesy of wholesomer themes and saner thoughts in modern fiction shown in this instance by the utilization, and the effective utilization of such subjects as great health movements, philanthropic movements and eugenic movements, both to adorn the tale, and in doing so to point many a moral.

The most startling feature of the book is the way its author has torn aside the curtain and revealed certain phases of the relationship between the medical profession and society. Certain ethical obliquities and certain moral obtundities are exposed in their nakedness. The proprietary hospital, the public clinic, the commercial medical essay, the self-exploiting doctor and the vice of fee-splitting are here just considered among the various sinister influences now operative in our social complex. The exposé will cause the brow of many a lay reader to become corrugated into an interrogation point. It will cause many an honest doctor to flush with indignation or to bow his head in shame. But he will see that Mrs. Backus has dealt with facts; in short, that she has followed the golden rule of Balzac, who insisted that "in the writings of great novels every element of the great falsehood must be true."

It may be said that the hero, Dr. Jim, exemplifies those very impulses which stand to-day for the most progressive type of physician—the larger physician, the man, who being a physician, is at the same time a full-fledged citizen and something more. The chapter on "The Doctor in Politics" is well worthy of thoughtful consideration. There is not a physician in the United States who would have his profession properly understood by the public, who ought not to see to it that this book is placed in the hands of every member of his clientele.